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THE ROLE OF THE EIB GROUP IN SME LOAN SECURITISATION IN PORTUGAL

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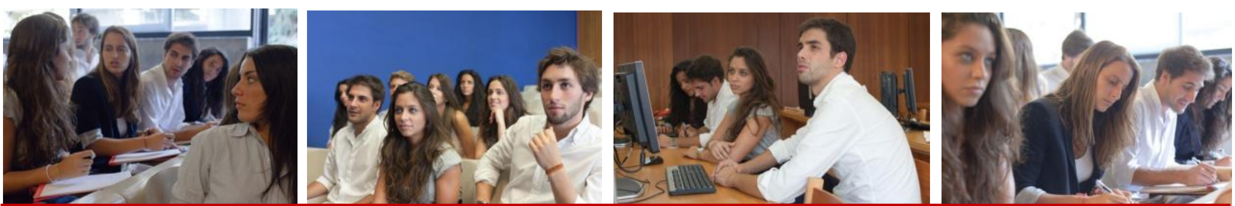

BIOGRAPHY

Born in France in 1978, I moved to Portugal in 1996, where I completed a 5-year degree in Languages, Secretarial Studies and Business Administration from the School of Accounting and Administration of Porto (ISCAP). After traineeships and temporary jobs in Portugal, as well as a traineeship in Poland, I started working in 2003 as office manager in the Venture capital firm "Change Partners" in Oporto (Portugal). After serving as administrative assistant in 2005 in the Intercultural dialogue programme units "Europe-Africa" and "Transmediterranean Countries" of the North-South Centre of the Council of Europe in Lisbon (Portugal), I was in 2006 selected by the European Investment Bank to join its legal department in Luxembourg. While studying Business Administration at the *Universidade Aberta*, I moved in 2009 to the division of Lending Operations in Latin America at the European Investment Bank to take on the post of Monitoring Assistant later reshaped into Financing Operations Analyst.

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DISCLAIMER

The opinions and views expressed in this dissertation are those of the author only and do not necessarily represent the views of the EIB Group. Errors, if any, are unintentional and are of the sole responsibility of the author.

ABSTRACT

In the European Union, the small and medium-sized enterprises (SMEs) access to finance is key to job creation and economic growth and it is mostly done through banks. However, bank loans have become scarcer in many countries, including Portugal. In view of SMEs' financing difficulties, the revival of the securitisation market could be a way to channel resources to SMEs. The EIB Group was involved in six SME loan securitisations structured in Portugal since 2003. By describing two Portuguese SME loan securitisation transactions undertaken prior to 2008, I show that the EIB Group's presence brought advantages in the form of lower spreads, know-how transfer, and better marketability of the securities issued. Nevertheless, I could not find definite evidence that the EIB Group's presence was the only factor behind the increase in loans to SMEs, as lending to corporates by the whole Portuguese financial sector increased in the period 2003-2008.

Keywords: SME loan securitisation, European Investment Bank, EIB, European Investment Fund, EIF

JEL Codes: G15, G21, G23, G24, G28

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ABBREVIATIONS

ABCP	Asset-Backed Commercial Paper
ABS	Asset-Backed Securities
BCP	Banco Comercial Português, S.A.
BES	Banco Espírito Santo, S.A. (now Novo Banco, S.A.)
BPN	BPN – Banco Português de Negócios, S.A.
CGD	Caixa Geral de Depósitos, S.A.
CLO	Collateralised Loan Obligation
ECB	European Central Bank
EIB	European Investment Bank
EIF	European Investment Fund
EU	European Union
FGTC	*Fundo de Garantia de Titularização de Créditos* ("Guarantee Fund of Credit Securitisation")
FTYPME	*Fondos de Titulización de Pequeñas y Medianas Empresas* ("Asset Securitization Funds for Small and Medium-Sized Enterprises")
INE	*Instituto Nacional de Estatística*
KfW	*Kreditanstalt für Wiederaufbau* ("Credit Institution for Reconstruction" – German Development Bank)
SIFMA	Securities Industry and Financial Markets Association
SME	Small and Medium-Sized Enterprise
SPV	Special Purpose Vehicle
TFEU	Treaty on the Functioning of the European Union

INTRODUCTION

The US Subprime mortgage crisis and the Asset-Backed Commercial Paper (ABCP) have been blamed for causing the 2008 financial crisis, thus giving a bad image to securitisation. The bad quality of the underlying assets of the securities issued, the high leverage and maturity mismatch of ABCP conduits, as well as the connection between such ABCP conduits and global financial institutions helped to foster a worldwide financial crisis. Nevertheless, the Bank of England and the European Central Bank have recently expressed their belief that if used with care, securitisation could be a way to channel resources from financial markets to the real economy, and in particular to Small and Medium-Sized Entreprises (SMEs) (ECB and BoE, 2014). Furthermore, in the view of both Mario Draghi and Yves Mersch from the European Central Bank, such securitisation revival could be done with the support of the EIB Group, which is composed of the European Investment Bank and the European Investment Fund (FT, 2013, Mersch, 2013 and 2014 and Draghi, 2014).

SMEs are significant to Portugal's economy, as they are responsible for more than 80% of the employment in the country. Nevertheless, Portuguese SMEs' indebtedness represented 72% of their total assets over the period 2004-2012 (INE, 2012, 2013 and 2014). SMEs' access to finance is mostly done through banks, but over 2012, 27% of Portuguese SMEs' loan requests were rejected, more than in the previous year (22% in 2011) (European Commission, 2013 and ECB, 2013a). Overall, the availability of bank loans to SMEs has been shrinking dramatically as well in other countries of the European Union, such as Greece, Spain, and Italy (ECB, 2013b). As a result, the European Council requested an increased support from the EIB Group towards SMEs (EIB Group/European Commission, 2013). The EIB Group has been providing since 1976 support to Portuguese SMEs through financial and guarantee institutions, venture capital funds and SME loan securitisation. Although securitisation has been linked to the 2008 financial crisis, it may convey benefits, such as additional liquidity and risk diversification for banks and investors, as well as alternative funding for banks. In addition, securitisation might increase banks' lending capacity to SMEs. The EIB Group's presence in SME loan securitisation transactions may also provide quantitative and qualitative value added in SME loan securitisation, which are assessed by describing two specific Portuguese transactions undertaken prior to 2008, one with and the other without the EIB Group's support using several criteria. The percentage of the placed securities with investors over the total issue is deemed to show the measure of their attractiveness to investors. The cost of SME loan securitisation with or without the EIB Group support when compared to other sources of funding is set to define whether there is indeed a financial advantage that could be passed on through securitisation to SMEs in the form of lower interest rates, and if such financial advantage is higher when the EIB Group is involved. The trend of SME lending prior and after the SME loan securitisation operations studied is analysed to identify if the EIB Group's presence made a difference in terms of the originating bank's lending capacity towards SMEs.

The results obtained provide evidence that the EIB Group's presence brought advantages in the form of lower spreads, know-how transfer, and better marketability of the securities issued. Nevertheless, there is no definite evidence that the EIB Group's involvement was the main factor behind the observed increase in loans to SMEs, as overall lending to corporates by the whole Portuguese financial sector also increased in the period 2003-2008.

As for the structure of the present dissertation, in the first chapter, I present the EIB Group and its activity in Europe and Portugal. In the second chapter, I proceed with the definition of the term "securitisation", and show its role in the financial crisis, as well as the potential benefits it may convey. In the third chapter, I exemplify the mechanics of the presence of the EIB Group in a SME loan securitisation transaction. The proper study of two Portuguese SME loan securitisation operations, one with and the other without the EIB Group support, is performed in the fourth chapter, the limitations of such study are there acknowledged, followed by a summary of the main findings. Finally, in the fifth chapter, I propose potential lines of further study prior to offering a conclusion to the present dissertation.

Chapter 1: THE EIB GROUP

1.1. The European Investment Bank

The European Investment Bank was created by the Treaty of Rome (European Community, 1957) *"to facilitate the economic expansion of the Community by opening up fresh resources"*. The Article 130 of the Treaty clearly stated at the time that:

"The task of the European Investment Bank shall be to contribute, by having recourse to the capital market and utilising its own resources, to the balanced and steady development of the common market in the interest of the Community. For this purpose the Bank shall, operating on a non-profit-making basis, grant loans and give guarantees which facilitate the financing of the following projects in all sectors of the economy:

(a) projects for developing less developed regions;

(b) projects for modernising or converting undertakings or for developing fresh activities called for by the progressive establishment of the common market, where these projects are of such a size or nature that they cannot be entirely financed by the various means available in the individual Member States;

(c) projects of common interest to several Member States which are of such a size or nature that they cannot be entirely financed by the various means available in the individual Member States."

The Treaty on the Functioning of the European Union (TFEU) in force nowadays maintains most of the wording of the Treaty of Rome concerning the European Investment Bank only replacing *"Community"* by *"Union"* and adding a last paragraph which reads: *"In carrying out its task, the Bank shall facilitate the financing of investment programmes in conjunction with assistance from the Structural Funds and other Union Financial Instruments."* (EIB, 2013a and Eur-Lex, 2013)

The public policy role of the European Investment Bank has been the topic of the academic articles of Pinder (1986), Honohan (1995) and Robinson (2009) (Table 1). Pinder (1986) and Honohan (1995) stressed the European Investment Bank's contribution to economic cohesion throughout the European Union (EU) by providing long-term funds at competitive rates in regions where the local financial market is not as efficient. In addition, Pinder (1986) and Robinson (2009) highlighted that most of the

European Investment Bank's lending is directed to poorer regions, i.e. regions with a GDP per capital lower than 75 per cent of the EU average, or with structural problems.

Table 1: The European Investment Bank role underlined in academic literature

European Investment Bank Role	Findings	Authors/Studies
Promotion of inter-regional balance and political unity in the European Community	European Investment Bank's lending mainly towards "poorer regions"	Pinder (1986) and Robinson (2009)
Contribution to economic cohesion throughout the European Union	European Investment Bank long-term funds at competitive rates in regions where local financial market is less efficient	Pinder (1986) and Honohan (1995)

1.1.1. Funds available to the European Investment Bank

As stated in the Article 20 of the European Investment Bank's statutes (EIB, 2013a), *"the bank shall borrow on the capital markets the funds necessary for the performance of its tasks."* Furthermore, the European Investment Bank is also authorised to invest on the money markets, and buy and sell securities. In addition, the European Investment Bank is since July 2009 an eligible counterparty in the Eurosystem's monetary policy operations (ECB, 2009).

During 2013, the European Investment Bank raised EUR 72,1 billion in international capital markets, which makes it the world's largest supranational borrower[1]. The European Investment Bank issued bonds in EUR (48,9% of its overall borrowing), USD (29,7%) and GBP (13,5%), as well as in other currencies (7,9%), such as Swedish Krone (SEK), Swiss Francs (CHF), Russian Ruble (RUB), Japanese Yen (JPY), New Turkish Lira (TRY), and South African Rand (ZAR) (EIB, 2013b and c).

Although the European Investment Bank is a non-profit organization as stated in the article 309 of the TFEU (EIB, 2013a and Eur-Lex, 2013), it has been systematically posting profits since its inception. Such profits are retained as reserves, as there are no dividend distributions and the European Investment Bank is not subject to any income tax[2]. Additionally, the European Investment Bank benefits from a preferred creditor status, especially in loans granted to or guaranteed by European sovereigns. This is mainly the reason why the European Investment Bank did not suffer losses on its exposures to European sovereigns during the recent European sovereign debt crisis (Fitch, 2013 and Standard & Poor's, 2013).

[1] In 2013, the World Bank raised in international capital markets USD 22,1 billion by issuing bonds in 21 currencies (World Bank, 2013)

[2] Article 3 of the Protocol No.7 on the Privileges and Immunities of the European Union (EIB, 2013a)

1.1.2. Recent capital increase

In accordance with the Article 16(5) of the European Investment Bank's statutes (EIB, 2013a), the aggregate amount outstanding of loans and guarantees granted by the European Investment Bank cannot exceed 250% of its subscribed capital, reserves, non-allocated provisions and profit and loss surplus less the amount subscribed by the European Investment Bank in any equity participation.

At end-2011, the European Investment Bank's subscribed capital amounted to EUR 232,4 billion, of which approximately 5% was actually paid-in. In order to safeguard EIB's triple-A rating[3], as well as to increase its lending capacity towards SMEs, a paid-in capital increase by EUR 10 billion, with effect from 31 December 2012, was approved by its shareholders, i.e. the EU Member States. The capital was raised on a pro rata basis from the EU Member States. As such, at end-2012, the European Investment Bank's subscribed capital amounted to EUR 242,4 billion, of which approximately 8,9% was paid-in (EIB, 2012).

1.2. The European Investment Fund

The triple-A rated European Investment Fund is part of the EIB Group since 2000 when the European Investment Bank became its majority shareholder. Established in 1994, it is the European institution in charge of providing support to SMEs all across Europe[4] through Business Angels, European venture and growth capital funds, guarantees, and microfinance. Over 2013, the European Investment Fund supported a total of 140 000 SMEs in Europe (EIF, 2013, and 2014a).

The European Investment Fund's shareholders are the European Investment Bank (62,1%), the European Commission (30%), and 25 banks and financial institutions (7,9%) from the European Union and Turkey, such as Banco BPI and Barclays Bank (EIF, 2014a). At end-2013, the European Investment Fund had a subscribed capital of EUR 3 billion, of which 20% was paid-in (EIF, 2013).

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[3] The credit rating agencies Fitch and Standard&Poors placed the EIB's ratings with a negative outlook in December 2011, followed in 2012 by the credit rating agency Moody's:
http://www.eib.europa.eu/investor_relations/press/2011/2011-192-s-p-decision-to-put-eib-on-creditwatch-negative.htm
https://www.fitchratings.com/creditdesk/press_releases/detail.cfm?pr_id=737140

[4] According to the Article 23(1) of the European Investment Fund's statutes, *"the Fund may conduct its activities in the territory of the Member States of the Union, in candidate and potential candidate countries to the Union, and in the European Free Trade Association (EFTA) countries."* (EIF, 2014b)

1.2.1. Funds available to the European Investment Fund

The main funds available to the European Investment Fund are its own resources (paid-in capital), as well as funds granted under mandates by the European Investment Bank, the European Commission, EU Member States and/or third parties. Such mandates include, among others, the Risk Sharing Instrument for Innovative Research oriented to SMEs and Small Mid-caps (RSI), the Joint European Resources for Micro to Medium Enterprises (JEREMIE), and the European Commission's Competitiveness and Innovation Framework Program (CIP) – SME guarantee facility (SMEG) (EIF, 2014a).

1.2.2. Recent capital increase

In accordance with the Article 26 of the European Investment Fund's statutes, *"the overall commitments of the Fund, excluding commitments made by the Fund on behalf of third parties, may not exceed for guarantee operations: three times the amount of subscribed capital"* although such limit may be raised by decision of the General Meeting up to five or eight times if the reserves of the European Investment Fund total at least 7,5% of its subscribed capital, and *"for participations: the amount decided by the General Meeting pursuant to Article 12 of these Statutes."* (EIF, 2014b)

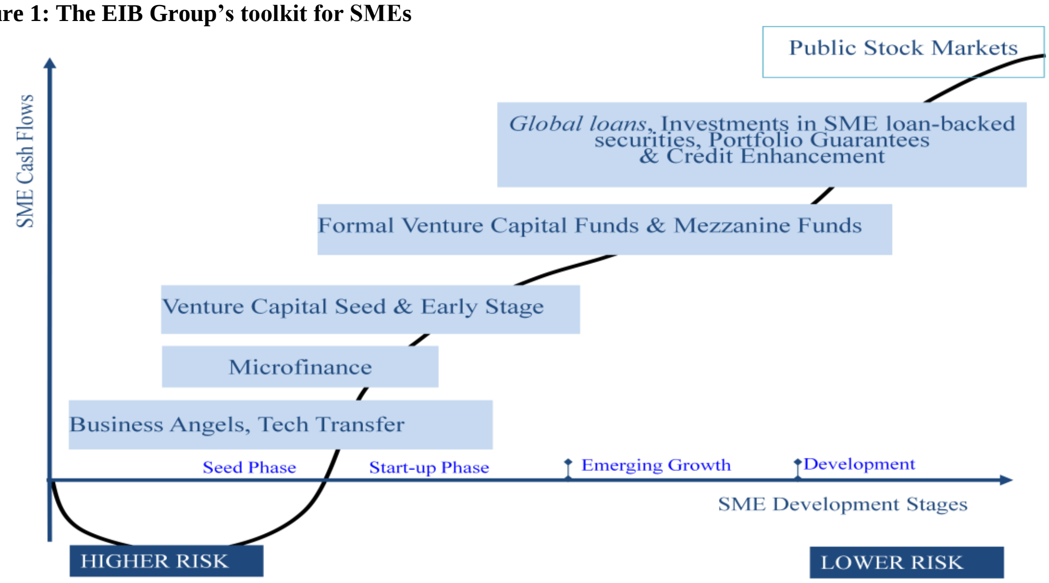
During 2013, the European Investment Fund signed 69 new guarantee and securitisation transactions worth EUR 1,84 billion and it committed EUR 1,47 billion towards 68 seed, venture and growth capital funds. At end-2013, its outstanding guarantee and securitisation commitments were equal to EUR 5,57 billion, whereas its outstanding participations in funds amounted to EUR 7,9 billion, totalling overall commitments of EUR 13,5 billion (almost five times its subscribed capital) (EIF, 2013).

In view of the difficulties faced by European SMEs to obtain financing, the European Council demanded an increased support from the European Investment Fund. Considering its current commitments and subsequent reduced capacity for any new obligation, the European Investment Fund's General Meeting approved on 27 May 2014 a capital increase from EUR 3 billion to EUR 4,5 billion (EIF, 2013). Such capital increase will help to increase the European Investment Fund's support to SMEs, as well as complement the European Investment Bank's lending to SMEs.

1.3. The EIB Group's support to SMEs in Europe and in Portugal

Each of the institutions composing the EIB Group has its own tools to make financing available to SMEs at each phase of their development. Such instruments complement each other and may be combined (Figure 1).

Figure 1: The EIB Group's toolkit for SMEs

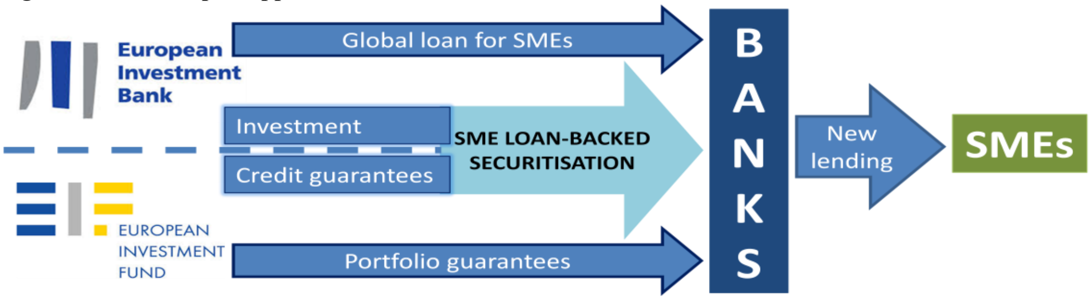


Source: Pelly and Kraemer-Eis, 2011 (adapted)

On the one hand, the European Investment Bank may lend at low rates and long maturities via intermediary institutions, such as commercial banks, to SMEs, mid-caps and smaller projects (the so-called "*global loans*"[5]). The European Investment Bank may also provide to a lesser extent guarantees, microfinance and make investments in SME-loan backed securities and equity. Its loans are capped at 50% of the investment costs or exceptionally 75% for projects in research, development and innovation and/or tackling climate change. On the other hand, the European Investment Fund may provide support to European SMEs through co-investments with business angels, venture and growth capital funds, portfolio guarantees to financial institutions, credit enhancement to SME loan securitisation transactions, and microfinance (Figure 2).

[5] The concept of global loans was introduced in 1968, with the first EIB's global loan signed in 1969. Global loans are loans to intermediary institutions (commercial banks, regional development agencies, government agencies, or other public authorities), which are subsequently in charge of on-lending the funds obtained from the European Investment Bank to SMEs. The intermediary institutions are responsible for the loan repayment, and as such bear the SMEs' default risks (Pinder, 1986).

Figure 2: EIB Group's support to SMEs via commercial banks



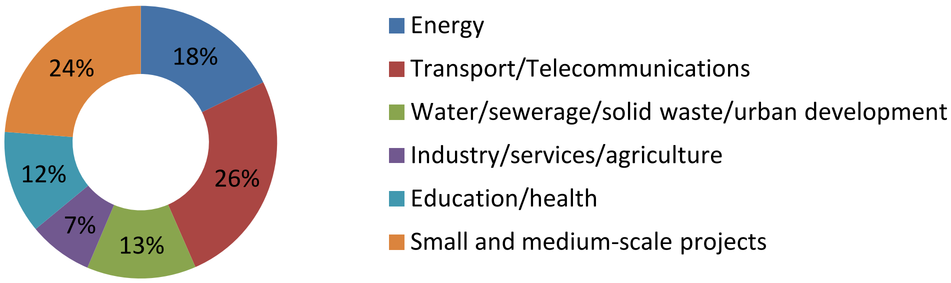
Source: Tappi, 2013 (adapted)

In July 2014, the EIB Group created the *ABS*[6] *Credit Enhancement Instrument*[7]. Such instrument will have funds up to EUR 2 billion from the European Investment Bank and the European Investment Fund to further support SME lending, and help reviving the SME loan securitisation market in Europe. Thanks to this new instrument, the EIB Group is expecting to provide support to 13 new European SME loan securitisation operations for a maximum of EUR 890 million over the next three years.

1.3.1. The European Investment Bank in Portugal

Up until end-2013, the European Investment Bank had already lent over EUR 41 billion to support Portuguese projects, which makes Portugal one of its main beneficiaries in relative terms. In the period 2009-2013, the European Investment Bank provided loans totalling EUR 11,1 billion to projects undertaken in Portugal, of which approximately EUR 2,6 billion (23,8%) were specifically directed to SMEs, mid-caps and smaller projects through financial intermediaries (EIB, 2013d and 2014) (Chart 1).

Chart 1: The European Investment Bank lending by sector in Portugal (2009-2013)



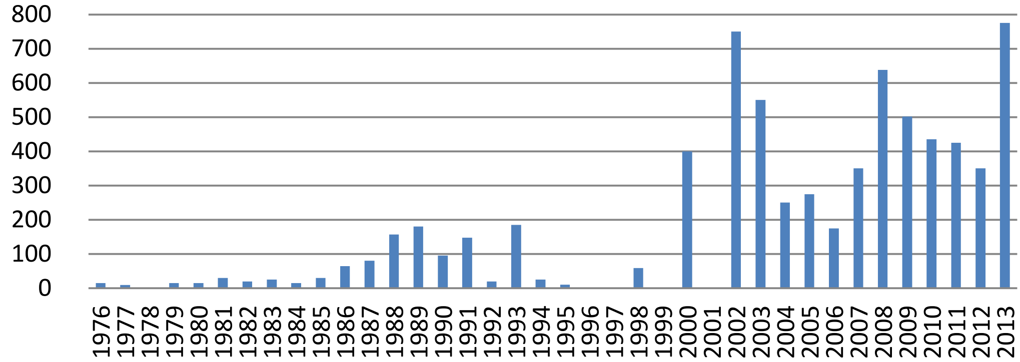
Source: EIB, 2014 (own elaboration)

The European Investment Bank already provided since 1976 a total of EUR 7,1 billion in *global loans* to support SMEs via Portuguese financial intermediaries (EIB, 2014) (Chart 2). It also subscribed EUR 225 million in SME loan-

[6] "Asset-backed security" defined in the glossary available in the Appendix 2 of the present dissertation.
[7] In addition to the EIB Group ABS Initiative for SMEs, which is a mix of guarantees for and investments in SME loan-backed securities (EIB Group, 2013)

backed securities from the transactions *Douro SME Series 1*, undertaken in 2005 by Banco BPI, and *Lusitano SME No. 1 plc*, undertaken in 2006 by Banco Espírito Santo.

Chart 2: Global loans in Portugal in the period 1976-2013 (in EUR million)



Source: EIB, 2014 (own elaboration)

In the period 1976-2013, the financial intermediaries channelling funds to SMEs have been Banco BPI (24,4%), Caixa Geral de Depósitos (19,8%), Banco Espírito Santo (17,3%), Banco Comercial Português (13%), Banco Santander Totta (10,8%), Banco Popular Portugal (4,1%), and Caixa Económica Montepio Geral (2,7%) (EIB, 2014).

In order to be eligible, financial intermediaries need to meet certain criteria, such as having an investment grade rating. As a result of the European sovereign debt crisis and subsequent loss of investment grade ratings by Portuguese banks, Portuguese financial intermediaries with outstanding *global loans* with the European Investment Bank had to post collateral. For instance, according to its 2012 Annual Report, Banco Espírito Santo had pledged to the European Investment Bank EUR 1,8 billion in securities at end-2012 (EUR 1,2 billion at end-2011). To overcome collateral constraints and to minimize the impact of such requirement on the liquidity of banks, the Portuguese Republic agreed in December 2012 to provide a guarantee to the European Investment Bank, which entered into force in October 2013. Such guarantee covers existing and future loans up to a maximum of EUR 6 billion against the payment of a low guarantee fee by banks to the Portuguese Republic (Europa, 2012 and EIB, 2013e).

During 2013, the European Investment Bank granted loans to Portuguese projects worth EUR 970 million, of which 79,9% (EUR 775m) were specifically directed to financial intermediaries to support Portuguese SMEs and midcaps (*global loans*). The recipients of such *global loans* were Rabobank (EUR 15m), Deutsche Bank (EUR 60m), Banco Popular Portugal (EUR 100m), Banco Comercial Português

(EUR 200m), Banco Espírito Santo (EUR 200m) and Banco Santander Totta (EUR 200m) (EIB, 2014). Under the signed loan agreements, the financial intermediaries commit to use the funds received to finance projects undertaken by Portuguese SMEs and midcaps in the industry, tourism and services' sectors, including research and innovation, energy and environment protection. In addition, they commit to match the amount received with their own resources, as well as to provide financing to SMEs and midcaps with longer maturities, flexible disbursements, and lower interest rates (EIB, 2013f, 2013g, and 2013h).

1.3.2. The European Investment Fund in Portugal

From 1998 to 2012, the European Investment Fund supported nine private equity funds mainly through the Portugal Venture Capital Initiative (PVCi)[8], and five institutions providing finance and guarantees, such as Banco Espírito Santo, Banco BPI, and Fundo de Contragarantia Mútuo (FCGM), benefitting some 1 400 Portuguese SMEs (EIF, 2014c). In 2013, the European Investment Fund granted portfolio guarantees of EUR 80 million each to Banco Espírito Santo and Banco BPI. It also signed loan agreements aimed at supporting micro-enterprises and self-employed entrepreneurs in Portugal (microfinance) with Banco Espírito Santo (EUR 8,8m) and Banco Comercial Português (EUR 0,5m). Moreover, until 2013, the European Investment Fund provided credit enhancements (guarantees) in six Portuguese SME loan securitisation transactions, undertaken by Banco Invest, Banco Comercial Português, Banco BPI, Banco Espírito Santo, Finibanco, and BANIF (*Appendix 1*). In two of them, the European Investment Bank was also present as an investor.

The EIB Group has been supporting SMEs in Portugal through financial and guarantee institutions, venture capital funds and SME loan securitisation. It was namely present in six Portuguese SME loan securitisation transactions. Before studying more closely one of those transactions, I will now proceed with the definition of the term "securitisation", prior to presenting the drawbacks and benefits brought forward by such financial innovation.

[8]The Portugal Venture Capital Initiative (PVCi) is a EUR 111 million private equity/venture capital "fund of funds" investing in Portuguese and international private equity and venture capital funds focusing on Portugal, managed by the European Investment Fund. It was set up in 2007 with the Portuguese Ministry of Economy and Innovation and Ministry of Finance, the Portuguese financial institutions: Banco BPI, Banco Espírito Santo, Millenium BCP, Caixa Geral de Depósitos, Barclays Bank, Caixa Económica Montepio Geral, BANIF, and Banco Santander Totta, as well as the Gulbenkian Foundation (EIF, 2014c).

Chapter 2: SECURITISATION

2.1.Definition

In most academic articles, the authors do not provide a comprehensive definition of the term "securitisation", except for the ones mentioned below (Table 2). Some of them do not even define it (e.g. Albertazzi et al., 2011; Loutskina, 2011), other rather simply refer to it as the pooling[9] of illiquid assets, which are then transformed into liquid assets, denominated asset-backed securities (e.g. Ambrose et al., 2005), or as a risk transfer mechanism (e.g. Acharya et al., 2013), probably under the assumption that the term should already be well-known by readers.

Table 2: Definitions of the term "Securitisation" in academic literature

Definition of Securitisation	Source
"Securitisation is a neologism used to describe the transformation of illiquid financial claims, often held by depository financial intermediaries, into tradeable ones. The liquefaction enhances values, and it also permits intermediaries to sell their assets and thereby decompose the traditional lending process into more elemental activities, i.e., origination, servicing, guaranteeing and funding. The unbundling permits intermediaries to specialize in those more basic activities in which they enjoy a comparative advantage and to shift to others those that they are less adept at performing. Securitization is achieved by pooling assets and 'credit enhancing' the pools. The securitized assets become closed-end mutual funds with partial guarantees against credit risk. The credit enhancement typically permits the newly created claims to obtain investment grade ratings from the major rating agencies. In addition, claims against these asset pools are often partitioned or stripped into tranches with differing rights to the cash flows."	Greenbaum and Thakor (1987:379)
"Securitisation is a financial technique that allows a batch of illiquid assets to be transformed into a liquid tradable instrument with a known flow of income payments. This transformation is made possible through the use of an instrumental entity (a special purpose vehicle or SPV) that is separate, by law, from the entity with ownership rights to the instrument. Consequently, this technique allows banks to transform heterogeneous assets that, in the great majority of cases, are not negotiable into securities that are liquid, homogeneous and suitable for sale to third parties."	Cardone-Riportella et al., 2010:2639
"The process of financing by segregates specified cash flows from loans originated by a firm (the sponsor) and sells claims specifically linked to these specified cash flows. This is accomplished by setting up another company, called a special purpose vehicle or special purpose entity, and then selling the specified cash flows to this company, which purchases the rights to the cash flows by issuing (rated) securities into the capital market. The sponsor services the cash flows, that is, makes sure that the cash flows are arriving, etc. The SPV is not an operating company in the usual sense. It is more of a robot company in that it is a set of rules. It has no employees or physical location."	Gorton and Metrick, 2012:449

[9] Asset pools defined in the glossary available in the Appendix 2 of the present dissertation.

Furthermore, Gorton and Metrick (2012), the European Commission (2004 and 2007), EIF (2003) and Kraemer-Eis et al. (2010 and 2013) provide a glossary of the terminology used in securitisation operations as some terms *"could be unfamiliar to some readers"* (Gorton and Metrick, 2012:429), of which some definitions are included in the Appendix 2 of this dissertation.

Basically, the term "securitisation" refers to the transformation of illiquid assets with relatively predictable cash-flows into tradable securities. Assets transformable into securities include credit portfolios of financial institutions, hire-purchase contracts, credit card loans, leasing of cars, equipments, planes, or boats, insurance premiums, franchising fees, and royalties, etc.

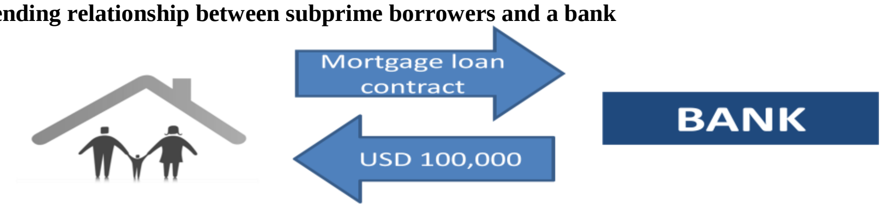
Although securitisation could be a straightforward and socially beneficial transformation, its misuse in the form of subprime mortgage securities and Asset-Backed Commercial Paper is considered to be one of the causes of the 2008 financial crisis (Gorton and Metrick, 2012, and Acharya et al., 2013).

2.2. A cause of the 2008 financial crisis?

2.2.1. The US Subprime mortgage crisis

The term "Subprime" refers to low-income borrowers and borrowers with a tarnished and/or limited credit history. Prior to 2007 and as the housing market was booming in the United States (US), banks lent money to such borrowers in order for them to acquire a house (Figure 3). Between 2004 and 2006, subprime mortgages accounted for more than 20% of the total mortgage originations in the US, reaching USD 600 billion by end-2006. By March 2007, prior to the crisis, outstanding subprime mortgages amounted to USD 1,3 trillion, corresponding to one tenth of the 2006 US Gross Domestic Product (Federal Reserve Bank of St. Louis, 2008; Dowd and Hutchinson, 2010, and World Bank, 2014).

Figure 3: Lending relationship between subprime borrowers and a bank

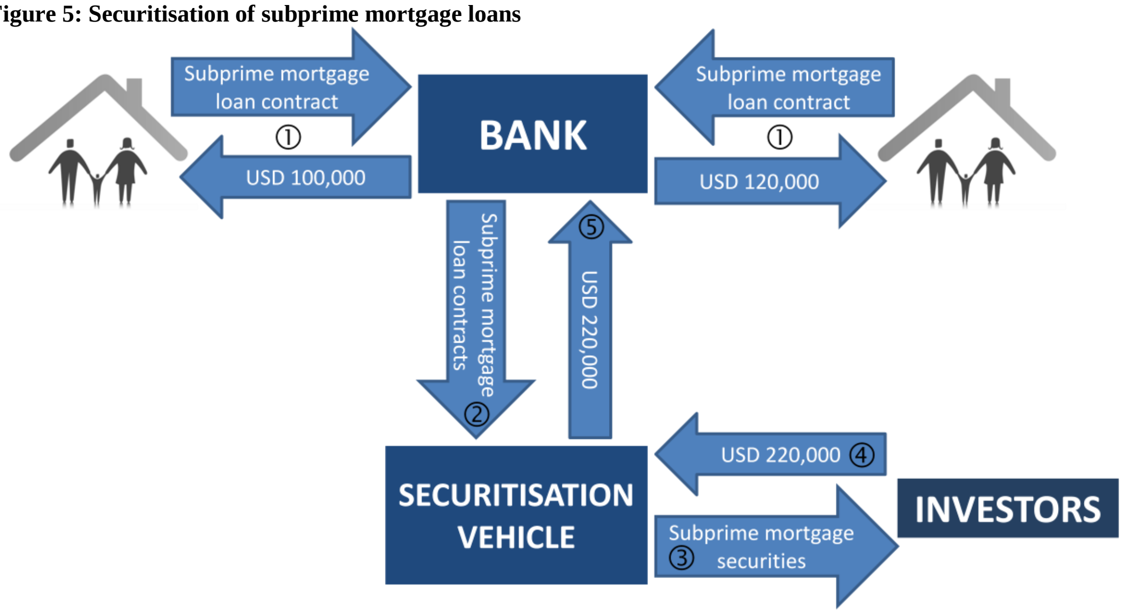


In subprime mortgage loan contracts, the house purchased by subprime borrowers was the guarantee of the loan in case of default. Banks believed that even if some borrowers could default, the house's market value would have increased in the meantime. Therefore, by selling the house, the bank could still get back more than the principal of the loan (Figure 4).

Figure 4: Default of subprime borrowers in a booming real estate environment

After a mortgage loan contract was signed (① in Figure 5), the bank packaged it with other subprime mortgage loans. It subsequently sold them to a special purpose vehicle (a securitisation vehicle) ②, which transformed them into securities ③ to be purchased by American and foreign investors ④, eager for high yield investments[10]. The securitisation of such loans provided funds to the originating bank ⑤, and was also a way to transfer the credit risk of its subprime mortgage portfolio to investors.

Figure 5: Securitisation of subprime mortgage loans

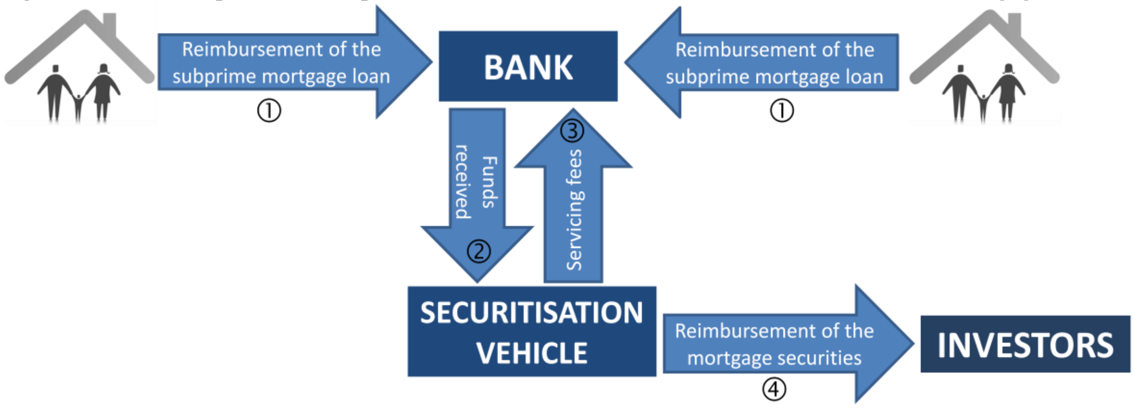


The subprime borrowers were not aware their loan contracts had been sold to investors via a securitisation vehicle. As such, they continued to repay their loans to the originating bank (① in Figure 6). The originating bank became then a mere intermediary between the subprime borrowers and the investors as at the time, banks did

[10] In the period 2000-2006, the average return on US home mortgages was about 122 basis points higher than the average return on 20-year US Treasury bonds (Dowd and Hutchinson, 2010).

not have to retain part of the securities sold. The originating bank would transfer the funds received from the subprime borrowers to the securitisation vehicle ②, which in turn would pay servicing fees to the originating bank ③ for its intermediary (servicer) role, thus providing the bank with a new source of income, and interests and principal to the investors ④.

Figure 6: Relationship between subprime borrowers and investors after the securitisation of mortgage loans



Nonetheless, by mid-2007, many subprime borrowers started to default due to rising floating interest rates. As a result, many houses were put in the market for sale and, consequently, housing prices started to plunge. For instance, a house bought at USD 100,000 with the money originally lent by the bank was only worth USD 50,000 when the subprime borrower defaulted. This, in turn, translated into losses for the investors, who had become, in the meantime, the indirect owners of the house via the subprime mortgage securities (Figure 7). The bank, as mere servicer, only stopped receiving servicing fees and, consequently, did not suffer major losses.

Figure 7: Default of subprime borrowers in a depressed real estate environment

The US subprime mortgage crisis was the result of weak lending standards and the subsequent bad quality of the securities issued. Due to the information asymmetry[11] existing in this type of transactions, the Dodd-Frank Wall Street Reform and Consumer

[11] Information asymmetry occurs when one party in a transaction has more information. Such situation may be harmful if such party takes advantage of the other party's lack of knowledge, thus potentially leading to adverse selection (prior to the transaction) or moral hazard (after the transaction).

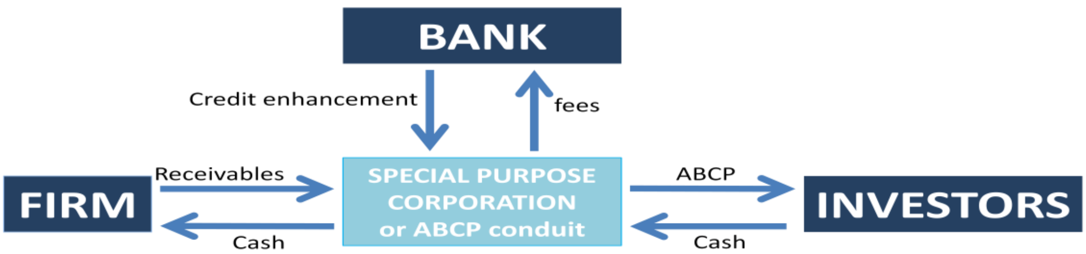
Protection Act, approved on 21 July 2010, now requires banks in the United States to retain at least 5% of the issued securities (the so-called "*skin in the game*").

In addition to the US Subprime mortgage crisis, Asset-Backed Commercial Paper also helped to foster the 2008 financial crisis. Most of Asset-Backed Commercial Paper programs were sponsored by U.S. and foreign banks, thus facilitating the transmission of the liquidity dry up to the worldwide financial system.

2.2.2. Asset-Backed Commercial Paper (ABCP)

In the summer of 2007, as a result of the US Subprime mortgage crisis, many Special Purpose Corporations issuing Asset-Backed Commercial Paper ("ABCP conduits") defaulted or were suspended. According to Moody's (2003), ABCP conduits first appeared in the 1980s, and were sponsored by commercial banks to provide trade receivable financing to their corporate customers. A firm in need for funds would sell its trade receivables to an ABCP conduit. Asset-Backed Commercial Paper (ABCP) with a maturity up to one year[12] would then be issued by the ABCP conduit with the sponsoring bank's guarantee (credit enhancement) to improve its credit rating[13] (Figure 8). The credit enhancement could take the form of liquidity lines, overcollateralization, and/or a standby letter of credit (Moody's, 2003, and Greenbaum and Thakor, 2007). The set up by banks of such ABCP conduits was a way for them to provide their corporate customers with low cost and off-balance sheet funding, as well as to reduce their own capital requirements under Basel accords (Box 1).

Figure 8: Traditional ABCP conduit



Source: Greenbaum and Thakor (2007:359) adapted

[12] Up to 270 days for the US commercial paper and up to 364 days for the Euro commercial paper
[13] Measure of the credit quality of a debt instrument, awarded by a credit rating agency, such as Moody's. ABCP with a triple-A rating are considered to have almost no chance of defaulting. For more information on ratings definitions, please refer to the Appendix 3 of the present dissertation.

Box 1: Basel accords

The Basel accords (Basel I, II and III) are sets of measures, developed by the Basel Committee on Banking Supervision, aiming at improving the supervision, the risk management, as well as the financial reporting standards of the banking industry (BIS, 2014). Basel regulation requires banks to hold a minimum capital equal to 8 percent of their risk-weighted assets (Basel ratio). The calculation of such ratio is done by computing the bank's assets risk-weighted depending on their nature. Two approaches can be taken by banks: (i) they can give an internal rating (using a scoring system previously approved by their central bank) to each one of their assets (claims) and then compute their risk-weights depending on their internal rating by means of a specific formula; or (ii) use the standardised approach and apply the risk-weights on each claim depending on its type and counterparty as set in the table 3 below (BIS, 2006).

Table 3: Some Basel II Risk-weights under the standardised approach

Claims on	**Credit rating**					
	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Sovereigns and central banks	0%	20%	50%	100%	150%	100%
Banks and securities firms	20%	20% or 50%	20%, 50% or 100%	50% or 100%	150%	20%, 50% or 100%

Claims on	**Credit rating**				
	AAA to AA-	A+ to A-	BBB+ to BB-	Below BB-	Unrated
Corporates	20%	50%	100%	150%	100%
BIS, IMF, ECB, EC and some Multilateral Development Banks (incl. the EIB Group)	0%				
Retail products (incl. loans to SMEs)	75%				
Mortgage	35%				
Commercial real estate	100%				
Provisions on overdue loans (excluding mortgage loans)	150% for provisions < 20% of the outstanding amount 100% for provision > 20% of the outstanding amount				
Direct credit substitutes (incl. letters of credit)	100%				
Other assets	100%				
Cash	0%				

Claims on Securitisation	**Long-term rating category**				
	AAA to AA-	**A+ to A-**	**BBB+ to BBB-**	**BB+ to BB-**	**B+ and below or Unrated**
	20%	50%	100%	150%	Deduction
	Short-term rating category				
	A-1/P-1	**A-2/P-2**	**A-3/P-3**	**All other ratings or unrated**	
	20%	50%	100%	Deduction	

Source: BIS (2006)

For instance, if the bank would grant a loan to a corporate, it would have to set aside 8 percent of its capital in line with Basel accords, as well as reserves against the deposits funding such loan in accordance with its central bank guidelines. Under Basel II standardised approach and assuming the corporate is unrated, the bank would have to set aside 8 percent of the amount of the loan as a claim on a corporate carries a 100% risk-weight:

$$Minimum\ required\ capital = Risk - weighted\ corporate\ loan * 8\%$$

$$Minimum\ required\ capital = (USD\ 1\ billion * 100\%) * 8\% = USD\ 80\ million$$

However, by using an ABCP conduit, the bank would only need to set aside 8 percent of the amount of the guarantee (credit enhancement) it would provide to the ABCP conduit. Usually, such guarantee is for a lower amount than the financing requested by the corporate via the ABCP conduit. In the present example, the total financing requested is USD 1 billion and the guarantee provided to the ABCP conduit USD 100 million. As the credit enhancement (e.g. letter of credit) is considered to be a direct credit substitute, it carries a 100% risk-weight under Basel II standardised approach. This means that if the bank would grant a USD 100 million letter of credit to the ABCP conduit, it would have to only set aside USD 8 million (or 8 percent of the amount of the guarantee), thus much less than it would do for a direct loan of USD 1 billion to the firm as recap in the table 4 (Greenbaum and Thakor, 2007).

$$Minimum\ required\ capital = Risk - weighted\ letter\ of\ credit * 8\%$$

$$Minimum\ required\ capital = (USD\ 100\ million * 100\%) * 8\% = USD\ 8\ million$$

Table 4: Example of capital consumption of a typical loan versus ABCP credit enhancement

	Typical loan to a firm	**ABCP credit enhancement (E.g. letter of credit)**
Amount	USD 1 billion	USD 100 million
Bank capital requirement	USD 80 million	USD 8 million

Source: Greenbaum and Thakor (2007:359) adapted

Over the 90s, ABCP conduits moved from exclusively financing trade receivables to making investments in rated securities for interest rate arbitrage, providing leverage to mutual funds, and off-balance sheet funding for firms and banks, but always benefitting from partial or full liquidity support from their sponsoring banks. As a result of such financial innovation, ABCP conduits became increasingly subject to liquidity risk due to the mismatch between their increasing medium- to long-term assets and their short-term liabilities (Figure 9). This was not originally the case when ABCP conduits were issuing ABCP exclusively backed by trade receivables, as in such case both assets and liabilities had similar maturities, i.e. short-term.

Figure 9: Balance-sheet of an ABCP conduit

ABCP CONDUIT	
USE OF FUNDS	**ORIGINS OF FUNDS**
Trade receivables, Government and agencies securities, Asset-backed securities, Corporate bonds, Residential Mortgage Backed Securities (RMBS), **Subprime mortgage securities,** Bank loans, etc.	**Asset-Backed Commercial Paper (ABCP)**
Maturity up to 30-50 years	**Maturity up to 1 year**

In the United States, ABCP conduits were configured to avoid the registration of the conduit and the registration of the commercial paper issued. As a result, such conduits were only allowed to sell ABCP to sophisticated investors, such as prime money market funds, corporate treasurers, investment funds, or public treasury managers. Additionally, ABCP conduits were not required to disclose the origin of their underlying assets, nor identify assets comprising less than 10% of their investments (Moody's, 2003). Such proceedings turned ABCP conduits opaque. Nevertheless, ABCP was considered to be a safe instrument as it was short-term, provided a higher-than-average yield when compared to other money market instruments, and benefitted in most cases from a guarantee by a renowned financial institution, such as Citibank, ABN Amro, HSBC, Deutsche Bank AG, Société Générale, or Barclays plc. As a result, at end-July 2007, the ABCP was the largest money market instrument in the US, with USD 1,3 trillion outstanding (Dowd and Hutchinson, 2010, and Acharya et al., 2013).

The ABCP were constantly rolled over, i.e. the proceeds of new ABCP issuance were used to repay maturing ABCP, which allowed the ABCP conduit to finance medium- to long-term assets on a continuing basis. However as a result of the US Subprime mortgage crisis, in August 2007, three investment funds of the French bank BNP Paribas which were mainly dealing with subprime mortgage securities suspended investors' redemptions, thus joining Bear Stearns Cos. and Union Investment Management GmbH (Bloomberg, 2007). As a consequence, investors became unwilling to acquire new ABCP because they were afraid they would suffer losses with opaque ABCP. As ABCP conduits could no longer rely on new ABCP issuance to repay investors, and as most of the ABCP conduits' assets were illiquid and/or lost market value, many ABCP conduits had recourse to their sponsoring banks, putting pressure on them to provide the much needed liquidity. Though, some sponsoring banks did not have enough funds to meet their obligations as guarantors, consequently leading to investors' losses. It was for instance the case of the German banks IKB Deutsche Industriebank and Sachsen Landesbank which had provided guarantees corresponding to three times their equity capital. Other sponsoring banks, such as ABN Amro or Citibank, were able to pay off investors but had to bear themselves the losses as they were required to repay ABCP at par whatever the value of the underlying assets (Acharya and Schnabl, 2010, Dowd and Hutchinson, 2010, and Acharya et al., 2013).

Institutional investors holding securitised subprime mortgages or derivatives of securitised subprime mortgages started then to bear losses. Such losses generated runs on the U.S. shadow banking system, mainly composed by special purpose vehicles involved in securitisation transactions, as it was the case of ABCP conduits, as a consequence of a loss of confidence. Such runs subsequently impacted banks in the U.S. and worldwide due to their direct financial exposure to the United States. ABCP conduits were opaque, relying on short-term funding and investing in risky and illiquid assets with long-term maturities, which led to their failure as they could not roll over their debt as it came due (Covitz et al., 2013 and Laeven and Valencia, 2014).

While securitisation in Portugal is a common practice since 1997 with its own legal specificities, there were no Portuguese bank sponsoring ABCP conduits in 2007. According to Acharya and Schnabl (2010), this may derive from the fact that the Portuguese regulator required banks to set aside 8 percent of their capital against assets in such conduits, thus making no distinction between assets on- and off-balance sheet.

Although recent events have shown securitisation's drawbacks, the increasing use of securitisation in Portugal, as well as in other European countries, derives from the potential benefits it may provide to originators, issuers, and investors.

2.3. Potential benefits of securitisation

Despite the fact that securitisation may carry downsides as it was evidenced by the US subprime mortgage crisis and ABCP, Johnson (2001) and Greenbaum and Thakor (2007) identify several potential benefits for originators, issuers, and investors. In their view, the use of securitisation may help banks to better manage interest-rate and credit risks, diversify their loan portfolio, increase their liquidity, diversify their funding sources, obtain new sources of income, focus on traditional banking activities, as well as to avoid "adverse selection"[14] and reduce regulatory charges.

In Portugal, 92,2% of the securitised assets in the period 2004-2011 originated in monetary financial institutions, such as retail banks (Almeida et al., 2012). Pinto and Marques (2007), via a survey realised in 2005, acknowledged that the Portuguese banks *Banco Alves Ribeiro* and *Banco Comercial Português* used securitisation to obtain liquidity and reduce their cost of capital.

2.3.1. Securitisation as a risk management tool

The securitisation of a bank's portfolio enables the originating bank to transfer part (if not all) of the credit risk of its loan portfolio to investors, as well as to better manage the interest rate risk. For instance, a bank may hold in its portfolio loans to Small and Medium-Sized Entreprises (SMEs) with a maturity up to 15 years when most of its funding is composed by on-demand deposits (Figure 10). By securitising such loans to SMEs, the bank reduces its maturity mismatch.

Figure 10: Example of a bank's balance-sheet

BANK	
ASSETS	**LIABILITIES**
Loans to households: Mortgage: EUR 284 million (30-60 years) Consumer: EUR 39 million (< 3 years) **Loans to companies (up to 30 years):** - SMEs: EUR 250 million - Big companies: EUR 215 million	Equity: EUR 43 million On demand deposits: EUR 700 million Savings deposits : EUR 45 million
EUR 788 million	**EUR 788 million**

[14] Adverse selection refers to the behaviour of a party in a transaction when it takes advantage of its superior knowledge to take advantage of the other party prior to the transaction.

Furthermore, securitisation allows the originating bank to diversify its loan portfolio. As explained by Johnson (2001), a bank can have geographic concentrations and/or high concentration in a particular type of loan in its loan portfolio as exemplified in the balance-sheet below (Figure 11). In that case, by securitising part of its loan portfolio, a bank can reduce its exposure to certain geographies and/or type of loans.

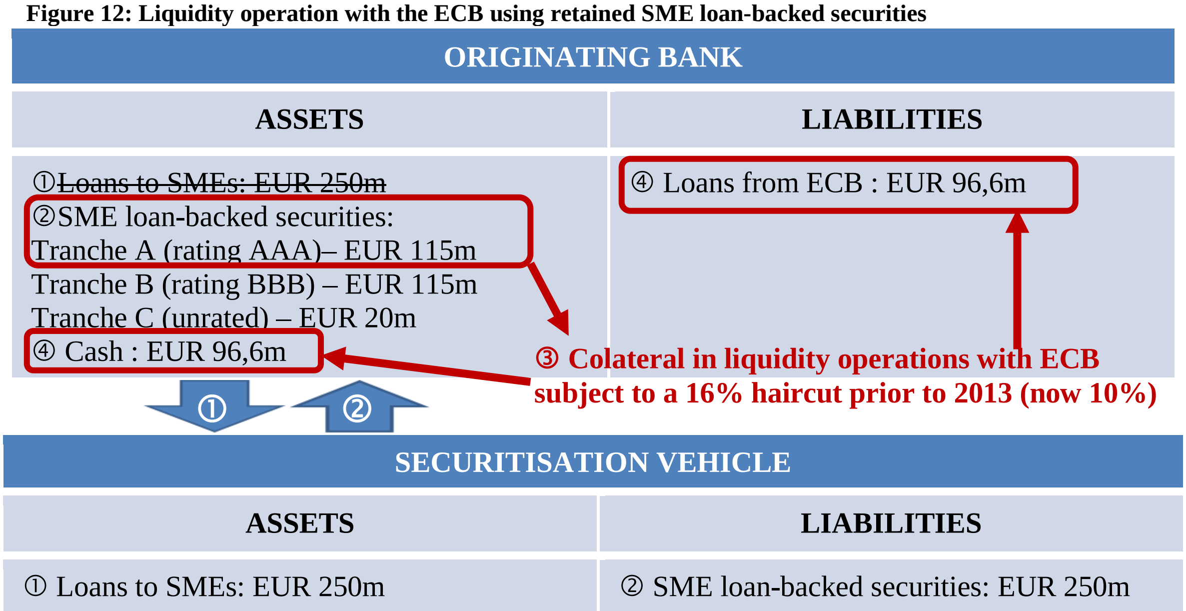
Figure 11: Example of a bank's balance sheet with geographic and loans' type concentrations

BANK	
ASSETS	**LIABILITIES**
Loans to households - Mortgage: EUR 284 million (36%) - Consumer loans: EUR 39 million (5%) **Loans to companies (59%):** - EUR 465 million located in: North Portugal: 10% Oporto and surroundings: 60% Lisbon and surroundings: 30%	Equity: EUR 43 million Deposits: EUR 745 million
EUR 788 million	**EUR 788 million**

2.3.2. Securitisation as a liquidity provider

One of the main drivers of bank loan securitisation identified by academic literature is the need for liquidity (e.g. Cardone-Riportella et al., 2010, and Loutskina, 2011). Securitisation provides liquidity as soon as a bank sells loans to a securitisation vehicle, which then issues securities to finance the purchase. Nevertheless, financial institutions can also choose to retain part or all the securities issued, and then use them in repurchase agreements negotiated with other financial institutions, as collateral in transactions undertaken in the derivatives market, and/or in liquidity operations with their central bank. For instance, due to the 2008 financial crisis, most of the Asset-Backed Securities (ABS) issued in Europe in the period 2008-2013 were retained by the originating banks as no investor was willing to acquire them. Moreover, the interbank money market was inaccessible to many financial institutions. In order to alleviate European banks' liquidity constraints, the European Central Bank (ECB) started in 2011 to accept as collateral in its liquidity operations ABS with a minimum single-A rating subject to a 16% haircut (ECB, 2011 and 2013c). This enabled banks to obtain the much-needed liquidity using their retained mortgage-backed or SME loan-backed securities. In that case, the originating bank could transform its loans into securities via a securitisation vehicle as exemplified in ① in the Figure 12 below and retain the securities ②. The bank would then use the best rated securities as collateral in liquidity operations with the ECB ③. Such securities would then be the guarantee of a loan to be obtained from the ECB equal to the value of the securities reduced by 16% (haircut) ④.

Figure 12: Liquidity operation with the ECB using retained SME loan-backed securities



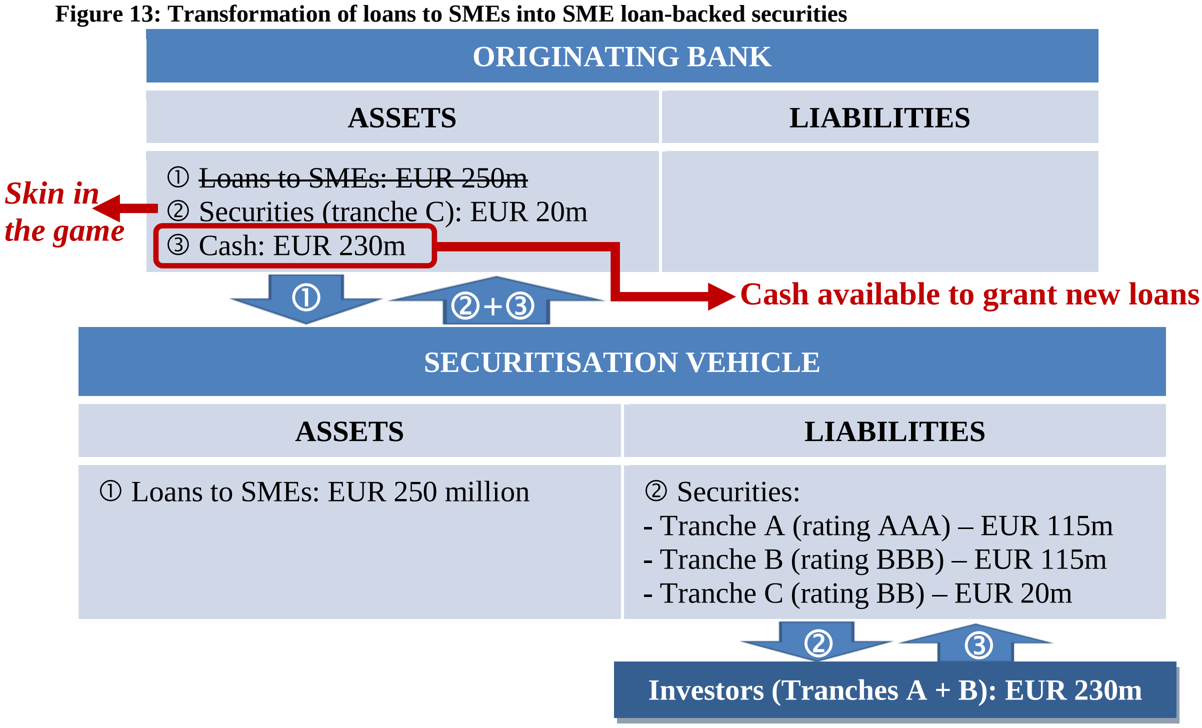
2.3.3. Securitisation as alternative funding

Once a bank has lent all its resources, it has to wait for its clients to reimburse their loans in order to be able to grant new loans, or alternatively, it can get funds from its central bank or other financial institutions, issue shares, or increase its deposits. However, increasing its deposit base might prove to be difficult in a competitive environment, and it may as well increase the bank's cost of funding, as it would happen by issuing shares. Additionally, in the Portuguese case, the eight largest banking groups are compelled to abide to the Portuguese Financial Assistance Programme negotiated in 2011 with the European Commission, the European Central Bank (ECB) and the International Monetary Fund (IMF). Such Programme specifies that the amount of loans such banks may grant to their customers should be equal or lower than 120% of their deposit base by 2014[15] (Transformation ratio). Another option is for the bank to sell part of its loan portfolio to a Securitisation vehicle in order to free up resources and diversify its funding sources. In that case, the Portuguese bank (originating bank) would transfer loans to a Securitisation vehicle ① (Figure 13). The Securitisation vehicle would then

[15] *http://www.portugal.gov.pt/media/371411/2r_mou_20111220.pdf*

issue securities ② with different credit risk levels (i.e. different credit ratings). Pursuant to the purchase of the securities by investors, cash would then flow from the investors via the Securitisation vehicle to the originating bank ③, modifying the originating bank's balance-sheet ①,② and ③.

Figure 13: Transformation of loans to SMEs into SME loan-backed securities



From the securities issued, the tranche A (senior tranche) is the safest tranche as it is the first one to be amortized, whereas the tranche C (first loss tranche) is the riskiest tranche as it is the last one to be amortized and only if enough funds are remaining once all underlying loans are reimbursed. The riskier tranche is usually retained by the originating bank ② (*skin in the game*[16]), which would be the first one to suffer losses if loans comprising the underlying loan portfolio default. All securities issued by the Securitisation vehicle are said to be bankruptcy remote from the originating bank as the loans transferred become the property of the Securitisation vehicle and are consequently no longer part of the bank's claimable assets in case of bankruptcy.

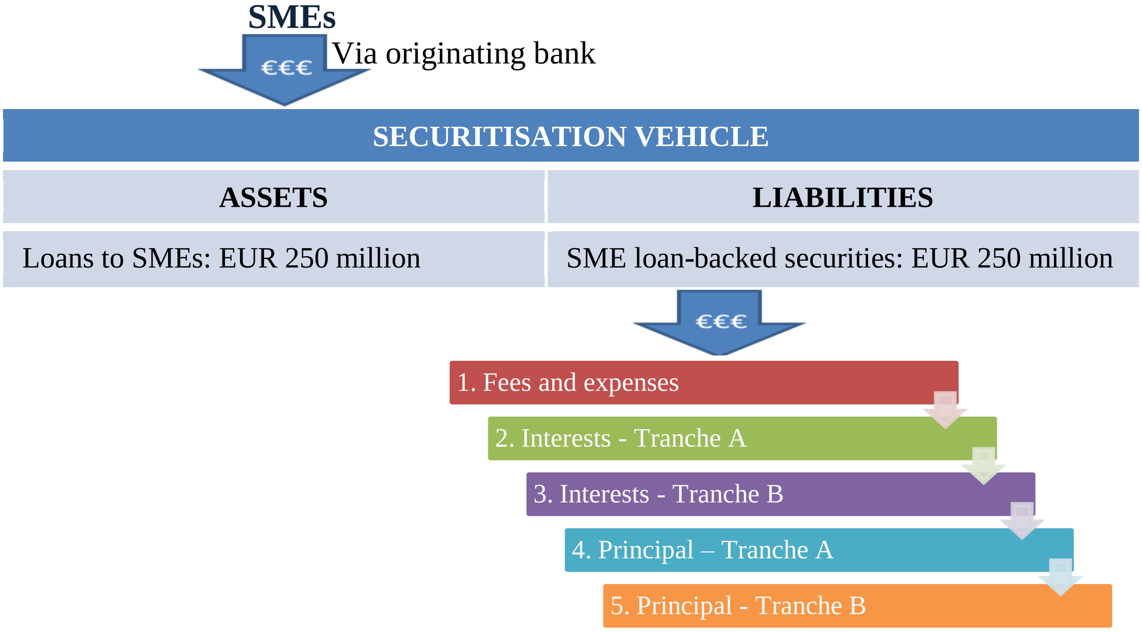
[16] In line with the Article 405(1) of the Regulation (EU) No. 575/2013 (OJEU, 2013) further complemented by the recent European Union Final Draft Regulatory Technical Standards on securitisation retention rules and related requirements (EBA, 2013), the originating bank should retain at least 5% of the securities issued ("*skin in the game*"). Prior to such regulation, Portuguese banks were already retaining in SME loan securitisation deals at least the riskiest tranche of each issue (also called "*Equity or First-Loss Piece*").

2.3.4. Securitisation as a new source of income

The borrowers of the securitised loans are usually not aware their loans were transferred to a Securitisation vehicle. As a result, they go on reimbursing their loan to the bank, which has granted them the loan originally (the originating bank). The originating bank (or servicer) then transfers the funds received from the borrowers (in the Figure 14 below represented as SMEs) to the Securitisation vehicle. The Securitisation vehicle then pays first, at each payment date, all fees and expenses, including the servicing fees which are paid to the originating bank for its intermediary role in the process. Until 2013, the servicing fees reported in the investors' reports of public Portuguese SME loan securitisation deals ranged between 0,05% and 0,35% per year on the outstanding principal balance of the SME loan-backed securities[17].

At each payment date, once all fees and expenses are paid out, the investors (except for the first-loss tranche) receive first interests, and then if there are funds remaining, the principal of the senior tranche A is reimbursed by the remaining amount. As soon as the principal of the tranche A is fully repaid, the reimbursement of the tranche B starts. The tranche C is the last one to be repaid and only if there are funds left at the end of the so-called *waterfall* process (Figure 14).

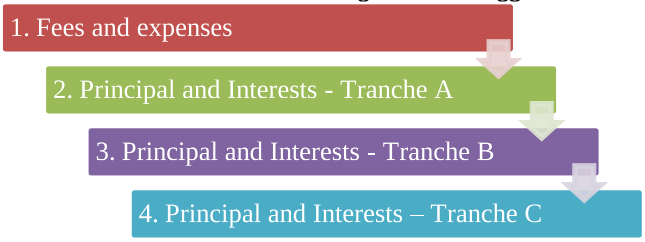
Figure 14: SME loan-backed securities' repayment (pre-enforcement waterfall)



[17] Servicing fees are calculated monthly on the outstanding principal balance of the underlying loans to SMEs. Such data is reported in the servicer monthly reports, which were not available in many cases.

Some Portuguese SME loan securitisation deals envisage that if the default level of the underlying SME loans' portfolio exceeds a certain level ("trigger"), then the repayment *waterfall* is modified (Figure 15). After the trigger event occurs, the principal and the interests are paid first to the tranche A investors (*post-enforcement waterfall*), rather than the principal of the tranche A being paid after interests are paid to the tranche B investors as it is the case in the Figure 14 (*pre-enforcement waterfall*).

Figure 15: Post-enforcement waterfall following a default trigger event



2.3.5. Securitisation as focus on origination, servicing, and monitoring

Banks are financial intermediaries specialized in originating, servicing, and monitoring loans. Securitisation enables banks to focus on such activities it can offer at a lower cost. Moreover, it is efficient for banks to specialize to avoid *diseconomies of scope* between traditional activities, such as origination, monitoring, and funding, and non-traditional activities, such as loan sales (Greenbaum and Thakor, 2007).

2.3.6. Securitisation as a mean to avoid "adverse selection" costs

Securitisation also allows banks to select assets with little information asymmetry. Such selection ensures assets are correctly valued by the market, consequently avoiding any "adverse selection" costs (Greenbaum and Thakor, 2007). For instance, in 2005, Banco BPI, rated A2 by Moody's at the time, sold part of its SME loan portfolio to a Securitisation vehicle. The operation was denominated "*Douro SME Series 1*". Four tranches were issued by the Securitisation vehicle to fund the purchase of the SME loan portfolio, of which the tranche A was rated AAA (89% of the whole issue). Such high rating was achieved thanks to the "bankruptcy remoteness" of the securitised assets. The average cost of such triple-A securities during 2005 was 2,3%[18], whereas the average of Banco BPI's Euro-Medium Term Notes Programme in EUR was at-end 2005 equivalent to 3,6% (Banco BPI 2005 Annual Report). By securitising

[18] Average of EURIBOR 3 months from April to December 2005 (Eurostat data), to which a spread of 10 basis points was added.

high-quality assets, Banco BPI was able to obtain a lower cost of funding (less 130 basis points) as there was no "adverse selection" costs included.

2.3.7. Securitisation as a mean to avoid regulatory charges

Securitisation makes it also possible for banks to get funds directly from investors, rather than from depositors. In that sense, it enables the bank to reduce regulatory charges, in the form of reserve requirements, and deposit insurance premiums. In Portugal, the central bank requires banks to set aside 1% as reserves against deposits with a maturity up to 2 years (2% prior to 2012)[19]. In addition, banks have to contribute with 0,03% of deposits to the Portuguese Deposit Guarantee Fund (with a minimum of 17 500 eur)[20]. Banks are also required under Basel accords to have a minimum capital equal to 8 percent of their risk-weighted assets (Basel ratio). For example, under Basel II and III, if an originating bank would keep a SME loans portfolio of EUR 250 million, it would be required to hold a minimum capital of EUR 15 million. However, by securitising such SME loan portfolio and keeping the least rated tranche of securities (rated BB) of EUR 20 million, the originating bank would then only be required to hold a minimum capital of EUR 2,4 million under Basel II and EUR 3,2 million under Basel III. In addition, the securities issued with a European Investment Fund guarantee would carry a 0% risk-weight, thus contributing to their attractiveness to financial institutions subject to Basel regulations. The table 5 below summarizes Basel II and III risk-weights on loans to SMEs and SME loan-backed securities under the standardized approach, which is currently used by most Portuguese banks, except Banco BPI, Novo Banco (former BES), and BCP.

Table 5: Standardised approach Basel Risk-weights (RW) on loans to SMEs and SME loan-backed securities

Standardised Approach	Basel II RW	Basel III RW	Capital Consumption
Loans to SMEs – EUR 250m	75%	75%	EUR 15m
SME loan-backed securities (rating: AAA) EUR 115m	20%	15%[21]	Up to EUR 1,84m
SME loans securities (rating: BBB) EUR 115m	100%	100%	EUR 9,2m
SME loans securities (rating: BB) EUR 20m	150%	200%	Up to EUR 3,2m
SME loan-backed securities with European Investment Fund guarantee - EUR 115m	0%	0%	EUR 0

[19] *http://www.ecb.europa.eu/mopo/implement/mr/html/calc.en.html*
[20] *http://www.fgd.pt/pt-PT/Legislacao/Paginas/default.aspx*
[21] In line with the Basel revisions to the securitisation framework dated December 2013 (BIS, 2013)

Regulatory capital arbitrage, which consists in reducing via securitisation the level of regulatory capital required[22] (e.g. Ambrose et al., 2005, and Acharya et al., 2013), is identified by the academic literature as being one of the main drivers of bank loan securitisation, the other one being liquidity needs.

2.3.8. Securitisation as a promoter of market completeness

Securitisation provides investors with higher quality assets when banks securitize its less risky assets. By pooling and tranching assets with different cash flow streams and adding to them a credit enhancement, securitisation also helps to create a new type of assets different from the ones already offered in the market, thus promoting market completeness (Greenbaum and Thakor, 2007).

As exemplified above, securitisation may bring several benefits, such as increased liquidity and risk management for financial institutions acting as originators or investors. The EIB Group as investor and/or guarantor in securitisation transactions with loans to SMEs as underlying assets may also provide originating banks and investors with other advantages.

[22] For instance, under Basel II, loans to SMEs require a 75% risk weighting, corresponding to 6% of the bank's capital, whereas A-rated securitized loans to SMEs only require a 20% risk weighting, or 1,6% of the bank's capital (BIS, 2006:23-24).

Chapter 3: THE EIB GROUP AND SME LOAN SECURITISATION

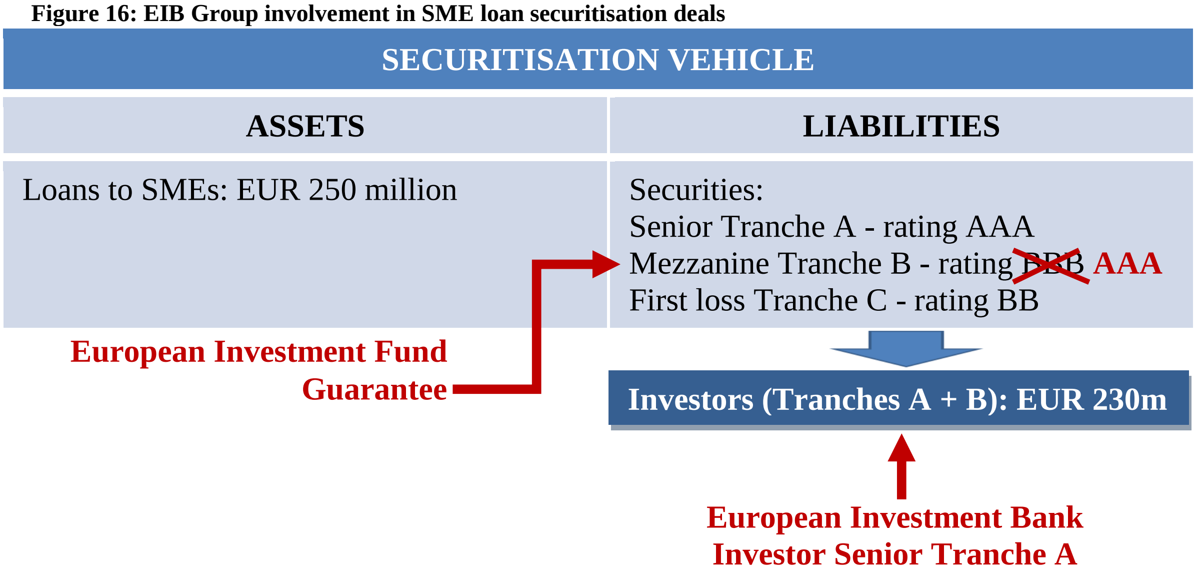
3.1. The EIB Group in SME loan securitisation transactions

The EIB Group may enter into SME loan securitisation deals by guaranteeing the mezzanine tranche[23] (i.e. the middle tranche, senior to the first loss/equity piece), and/or investing in the senior (safest) tranche.

The guarantee provided by the European Investment Fund transforms the initial rating of the mezzanine tranche into a triple-A rating (Figure 18), although such tranche usually provides investors with an interest rate higher than the senior tranche (also triple-A rated) not benefitting from a guarantee of the European Investment Fund. Furthermore, as such securities have a rating above A, if the investor purchasing the guaranteed securities is a financial institution, it can use the securities purchased in repurchase agreements with other financial institutions, as collateral in transactions undertaken in the derivatives market, and/or in liquidity operations with their central bank. In addition, as the securities are guaranteed by the European Investment Fund, they carry a 0% risk weight under Basel regulation, thus making them even more attractive to financial institutions.

The investment in the senior tranche (triple-A rated) made by the European Investment Bank might give rise to a so-called *EIB retrocession*, which may even lower the cost of such tranche to the originating bank.

Figure 16: EIB Group involvement in SME loan securitisation deals



[23] During the 2008 financial crisis, the European Investment Fund exceptionally guaranteed senior tranches in SME loan securitisation transactions, as for instance in the *Atlantes SME No. 1* transaction.

If the EIB Group gets involved in a SME loan securitisation deal as investor and/or guarantor, the originating bank has to commit to grant new loans to SMEs pursuant to the securitisation in exchange for being granted with funds or a guarantee from the EIB Group.

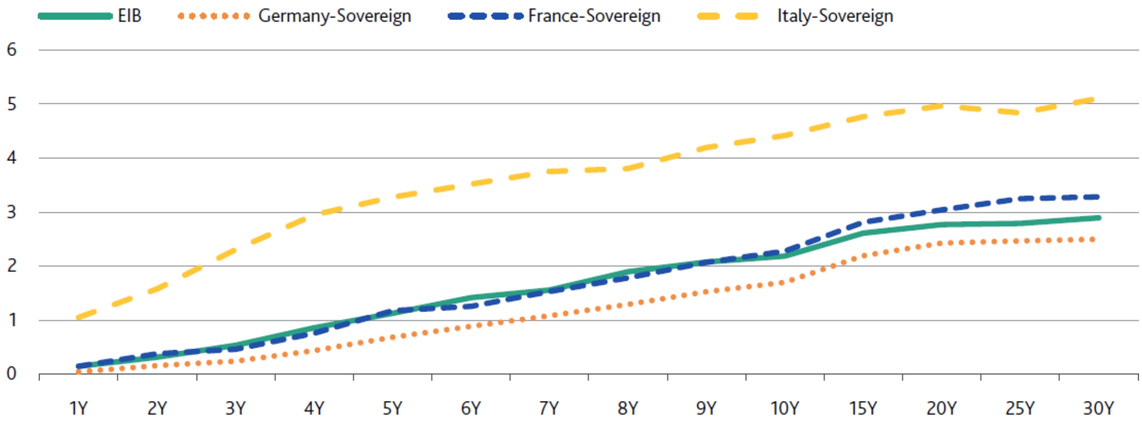
3.1.1. The European Investment Fund Guarantee fee

In exchange for providing a guarantee, the European Investment Fund receives a fee calculated on the outstanding balance of the guaranteed tranche. For instance, in the Portuguese SME loan securitisation transaction "*Douro SME Series 1*", such fees amounted to 0,51% per annum on the outstanding balance of the guaranteed tranche. The European Investment Fund determines the value of its guarantee fee based on its internal scoring of the operation. The European Investment Fund then assesses interest rates charged on other similar European SME loan securitisation transactions (market price) to ensure that the all-in interest rate to be charged on the guaranteed tranche remains below the market price.

3.1.2. The European Investment Bank retrocession

As it is enjoying a triple-A rating, the European Investment Bank is able to raise funds on the capital markets at advantageous rates. As it is also operating on a non-profit basis[24], the European Investment Bank charges low interest rates to its clients. Such interest rates represent the sum of its borrowing cost (yield curve of its issued bonds) and a spread to cover credit risk and its operating expenses (Chart 3)).

Chart 3: European Investment Bank's yield curve compared to Germany, France and Italy sovereigns



Source: Moody's (2013)

[24] Article 309 of the TFEU (EIB, 2013a and Eur-Lex, 2013).

If the European Investment Bank's all-in-cost is lower than the interest rate it receives as investor, the European Investment Bank gives back to the originating bank the difference between the two. This is the so-called *"EIB retrocession"*. Such differential should then be passed on to SMEs in the form of lower interest rates.

Assuming the European Investment Bank would charge an interest rate equal to EURIBOR 3 months + 7 basis points on a EUR 50 million loan to ZYX bank and that EURIBOR 3 months is equal to 2%, then the European Investment Bank would be entitled to receive EUR 1 035 000 as interests from ZYX bank.

Considering now that instead, it invests EUR 50 million in SME loan-backed securities originated by ZYX bank carrying an interest rate equal to EURIBOR 3 months + 10 basis points, then the European Investment Bank would be entitled to receive as investor EUR 1 050 000 in interests, thus more than it would if it would have lent directly EUR 50 million to ZYX bank. In that case, the European Investment Bank would give back to ZYX bank as *EIB retrocession* the difference between the interests it receives as investor and the interest it would have charged on an equivalent direct loan to ZYX bank, i.e. in the present example EUR 15 000 (Table 6).

Table 6: Numerical example of the EIB retrocession mechanics

Interest received on tranche A	European Investment Bank all-in-cost	EIB retrocession
EURIBOR 3M + 10 basis points	EURIBOR 3M + 7 basis points	Difference: (-7)+10 = 3 basis points returned to the originator (ZYX bank)
Interests: EUR 1 050 000 p.a. on a EUR 50 million investment	Interests: EUR 1 035 000 p.a. on a EUR 50 million loan	EUR 15 000

In the unlikely case that the European Investment Bank all-in-cost would be higher than the interest it receives as investor, then there would be no *EIB retrocession*, nor would ZYX bank be requested to pay the difference to the European Investment Bank.

3.2. The EIB Group and SME loan securitisation in the literature

There is no academic literature that I am aware especially studying the role of the EIB Group role in SME loan securitisation, apart from studies, reports, and working papers on the subject prepared or ordered by European institutions (European Commission, 2004 and 2007; EIF, 2003, and Kraemer-Eis et al., 2010 and 2013), or by the Euro Debt Market Association (AMTE, 2006). Such reports provide information on mechanisms available to support SME loan securitisation, such as the KfW PROMISE programme, the European Investment Fund's guarantees, and the public sector guarantees to SME loan securitisation available in Spain[25] and Portugal[26]. Some of them also mention Portuguese SME loan securitisation transactions but do not get into much detail (Table 7). Apart from the AMTE report, none of them attempts to evaluate and/or quantify the value added by the EIB Group's support to such transactions. Nevertheless, the AMTE report only evaluates the qualitative value added of the European Investment Fund's guarantee based on general data (i.e. not on a specific transaction). In addition, it does not take into account the possible involvement of the European Investment Bank in SME loan securitisation transactions.

Table 7: Portuguese SME loan securitisation transactions mentioned in institutional literature

Deal Name	Study / Report / Working Paper
AR Finance 1 plc	European Commission (2004)
Douro SME Series 1	AMTE (2006)
Promise Caravela 2004	European Commission (2007)

In light of the above and using data on Portuguese SME loan securitisation transactions, it would be valuable to understand what the mechanics of the EIB Group involvement in a specific SME loan securitisation transaction are, as well as the qualitative and quantitative advantages it may eventually bring, comparing it with a Portuguese SME loan securitisation transaction without EIB Group's support.

[25] *Fondos de Titulización de Pequeñas y Medianas Empresas* (FTPYME): Spanish Government program directed to financial institutions committing to grant new loans to SMEs: *http://www.ipyme.org/en-US/Financiacion/FondosTitulizacionfinanciacion/Paginas/TitulizacionFinanciacion.aspx*

[26] *Fundo de Garantia de Titularização de Créditos* (FGTC): Portuguese State-owned fund managed by PME Investimentos (*http://www.pmeinvestimentos.pt/fundo-de-titularizacao/apresentacao.html#*), owned by the Portuguese State-owned entities IAPMEI (88%) and "*Turismo de Portugal*" (12%)

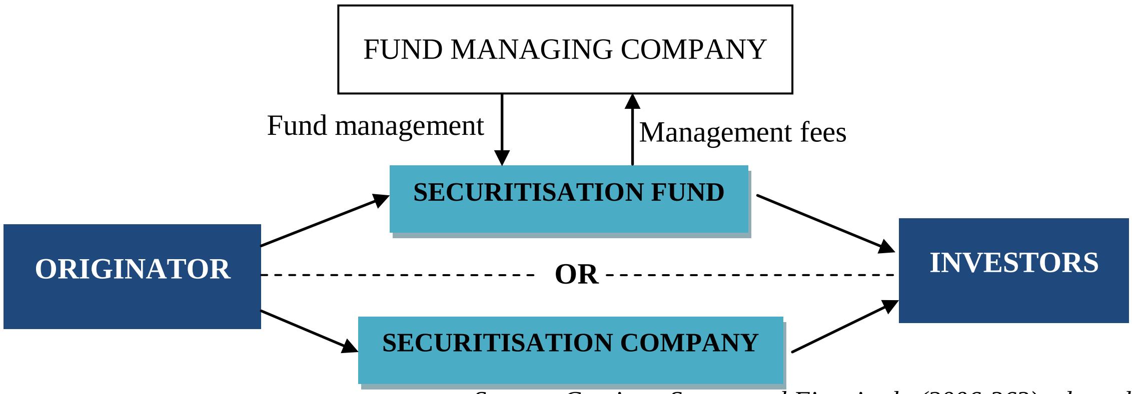
Chapter 4: SME LOAN SECURITISATION OPERATIONS' ANALYSIS

4.1. The Portuguese securitisation legal framework and activity

In Portugal, securitisation was legally introduced with the Decree-Law 453/99, of 5 November 1999 (the "Securitisation Law"), which was since then amended from time to time. Under such law, two distinctive securitisation vehicles (Figure 17) may be used in Portuguese securitisation operations (Calvão da Silva, 2013):

1) Securitisation funds ("*Fundos de titularização de créditos*") with an overseeing fund managing company, or
2) Securitisation companies ("*Sociedades de titularização de créditos*").

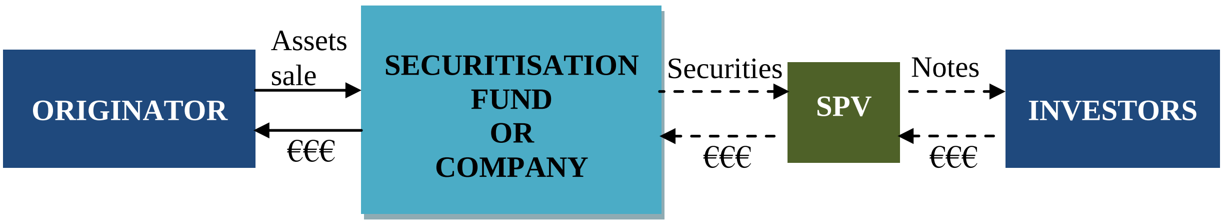
Figure 17: Securitisation structures in Portugal



Source: Cassiano Santos and Figueiredo (2006:363) adapted

Some securitisation operations also involve a Special Purpose Vehicle (SPV) located in another country, such as Ireland, on top of a securitisation fund or company located in Portugal (Figure 18). According to Cassiano Santos and Figueiredo (2006), the presence of such SPV represents a market and operation structure convenience, and not a legal requirement.

Figure 18: Portuguese securitisation structure involving a Special Purpose Vehicle (SPV)



Source: Cassiano Santos and Figueiredo (2006:363) adapted

The securitisation transaction can also be either a true sale, i.e. the underlying portfolio is sold and transferred to a securitisation fund or company, or synthetic, which means that the underlying portfolio remains with the originator although its credit risk is transferred to investors via Credit Linked Notes.

The first Portuguese securitisation operation took place in 1997 and the first Portuguese triple-A rated securitisation deal in 1999, both prior to the Securitisation Law. In 2001, the first securitisation operation structured under the Securitisation Law was also the first Portuguese mortgage securitisation[27] (Cassiano Santos and Figueiredo, 2006). The first SME loan securitisation operation "*AR Finance 1 plc*" was structured in 2003, and it was undertaken by Banco Invest[28] with the support of the EIB Group. In the same year, the first securitisation company was set up, thus providing an alternative to securitisation funds from that moment on (Cassiano Santos and Figueiredo, 2006).

The EIB Group was also present in the first SME loan securitisation operations undertaken by Banco Comercial Português, Banco BPI, Banco Espírito Santo, Finibanco, and BANIF. The EIB Group provided them with its know-how, and as such helped them to overcome their lack of track record in this type of operations.

At end-April 2014, a total of 27 securitisation funds and 5 securitisation companies were operating in Portugal (CMVM, 2014). Until 2010, securitisation funds were handling more securitised assets in volume than securitisation companies, but this changed after 2010 as a consequence of the loss of tax advantages once provided by securitisation funds. Furthermore, and as a consequence of the 2008 financial crisis and the subsequent lack of foreign investors' appetite to Portuguese securities, securitisation companies became more widely used (Banco de Portugal, 2012, and CMVM, 2013).

At end-June 2014, outstanding securitisation transactions amounted to EUR 34,5 billion. The Portuguese securitisation market is still dominated by residential mortgage-backed securitisation, which corresponded, at end-June 2014, to 73,2% of the overall outstanding securitisation (EUR 25,2 billion), followed by SME loan securitisation (15,5% or EUR 5,3 billion), and other asset-backed securitisation[29] (11,3% or EUR 3,9 billion) (data from SIFMA, 2014). So far, a total of seventeen exclusive SME loan securitisation transactions[30] have been structured in Portugal since

[27] "*Magellan Mortgage No. 1 plc*" was undertaken in 2001 by Banco Comercial Português, S.A..
[28] Banco Invest is the former Banco Alves Ribeiro.
[29] Asset-backed securitisation transactions include the securitisation of auto loans, consumer loans, credit card receivables, leases, etc. (SIFMA, 2013)
[30] The full list of transactions can be found in the Appendix 1 of the present dissertation.

2003. The triple-A rated EIB Group supported six of those transactions via the purchase of securities and/or guarantee, of which one of them will be subject of this case study.

4.2.Case Study methodology and selection of cases for study

In business research, the Case Study Research consists in analyzing a case in a real life context, which represents the application of a theory to a given contemporary phenomenon. The Case Study Research presumes the use of several different sources of data within each case(s), which can be quantitative, qualitative or both. In the present dissertation, the sources of data used were interviews with actors of one of the analysed cases, in particular officials from the European Investment Bank and the European Investment Fund, as well as persons in charge of this type of operations in Banco BPI and BANIF (primary data sources), as well as prospectus, originating banks' annual reports, annual reports of the European Investment Bank and the European Investment Fund, the Banco de Portugal, European Central Bank and Eurostat databases, rating reports and press-releases from the credit rating agencies Moody's, Fitch, Standard&Poors, and DBRS, the Investor Reporting websites from Deutsche Bank and Citigroup, and specialized websites, etc. (secondary data sources). Furthermore, the use of several different data sources reinforces research findings as a result of data triangulation, i.e. the verification/confirmation of the gathered data using different sources (Stake, 1995, Gillham, 2008, and Farquhar, 2012).

The selected cases were restricted to securitisation transactions of loans to SMEs undertaken by Portuguese banks (*SME Loan Securitisation transactions*) since 2003 when the first Portuguese SME loan securitisation transaction took place. The selection of the cases to be studied depended on the access to data, which due to confidentiality reasons had to be publicly available. In the selection of the cases, the changed nature of the market environment since the 2008 financial crisis was taken into account. According to Almeida et al. (2012), since 2009, the financial sector has been the main holder of the securities issued via the securitisation process, replacing foreign investors. In the case of bank loans' securitisation transactions, this translated into higher retention rates by originating banks, which subsequently have been using since 2011 the best rated securities as collateral in liquidity operations with the European Central Bank.

Seven exclusive SME loan securitisation transactions took place prior to 2009, of which two were privately placed: "*Promise Caravela 2004 plc*" and "*Caravela SME*

No. 1 Limited", which excluded them from the selection. Out of the remaining five SME loan securitisation transactions, the prospectus of the transactions "*AR Finance 1 plc*", "*Lusitano SME No. 1 plc*" and "*Aqua SME No. 1*" could not be found. As a result, the remaining two SME loan securitisation transactions closed prior to 2009 were selected: "*Douro SME Series 1*", closed in April 2005, and "*Chaves SME CLO*[31] *No. 1*", closed in December 2006. In the "*Douro SME Series 1*" transaction, the EIB Group's was present, whereas in the "*Chaves SME CLO No. 1*" transaction, the EIB Group did not provide any support. Such distinction will help to assess the EIB Group's relevance in the "*Douro SME Series 1*" transaction.

4.3. Case Study 1: DOURO SME SERIES 1

Douro SME Series 1 was the first SME loan securitisation operation undertaken by the Portuguese Bank *Banco BPI, S.A.*. The operation was closed on 6 April 2005 (closing date) for a total amount of EUR 500 million with maturity in November 2039. The revolving period, during which only interests were paid, ended in April 2008, i.e. 3 years from the closing date. The securities issued were fully reimbursed in May 2013 due to the exercise by Banco BPI of the clean up call foreseen in the transaction's prospectus. Such clean up call envisaged that Banco BPI could redeem all the securities when their aggregate remaining principal balance would correspond to less than 10% of their initial balance, as it was the case in May 2013.

Banco BPI, S.A.

The BPI Group was founded in October 1981 as *Sociedade Portuguesa de Investimentos*. It acquired in the 1990s *Banco Fonsecas & Burnay, Banco de Fomento e Exterior, Banco Borges & Irmão*, merging then into *Banco BPI*. *Banco BPI* is nowadays the leading institution of the BPI Group, the fourth biggest financial private group in Portugal with assets worth EUR 46 billion at end-2013. The BPI Group is also present in Spain, France, Switzerland, South Africa, Angola, and Mozambique. At end-June 2014, *Banco BPI*'s main shareholders were La Caixa Group (46,2%), Santoro Finance (19,5%), Allianz Group (8,8%), and HVF, SGPS, S.A. (2,1%). As of today, *Banco BPI* provides banking services to 1,7 million customers (individuals, companies, and institutions) through 592 retail branches, 39 investment centres, 53 commercial

[31] "Collateralised debt obligation" defined in the glossary available in the Appendix 2 of the present dissertation.

partners dedicated to corporate and institutional customers, as well as phone and homebanking according to Banco BPI's investor relations website.

The operation setup

In May 2004, Banco BPI contacted the European Investment Fund to help it prepare its first SME loan securitisation transaction. The European Investment Fund undertook, at the time, a study, including potential deal structures, recommended eligibility criteria and parameters to select the underlying portfolio, and an indicative tranching composition. Such study helped to bring into the deal the Portuguese Republic through the *Fundo de Garantia de Titularização de Créditos (FGTC)*[32], managed by PME Investimentos (EIF 2004 Annual Report). Up until now, the FGTC has only supported one SME loan securitisation deal, as the fund had only EUR 25 million available, and most of that amount was used in the *Douro SME Series 1* transaction.

In order to promote the operation, Banco BPI did a roadshow between 7 and 10 March 2005 across 7 European countries, meeting a total of 43 investors. Such roadshow proved successful with EUR 300 million orders placed for the tranche A (senior tranche) with the bookrunners prior to the release of their official price on 18 March 2005.

Underlying portfolio characteristics

According to the *Douro SME Series 1* prospectus, the underlying portfolio was, at the cut-off date (1 February 2005) composed of 5 465 loans to SMEs originated between 1995 and January 2005, corresponding to 4 863 borrowers. The weighted average remaining term of the loans at the cut-off date was 59,71 months (approximately 5 years). 99,19% of the amount of the securitised loans to SMEs was indexed to EURIBOR, and interest payment frequencies ranged from 1 month to 12 months, with 99,41% of the initial balance's interests being paid every 6 months or less.

In terms of geographic location, 1 582 loans to SMEs (27,79% of the initial balance, or EUR 138,9 million) comprised in the underlying portfolio were originated in Lisbon and surroundings, followed by Beira Litoral (928 loans worth EUR 98 million), Minho (625 loans worth EUR 62,3 million), Porto and surroundings (514 loans worth EUR 71,1 million), and Ribatejo (594 loans worth EUR 38 million).

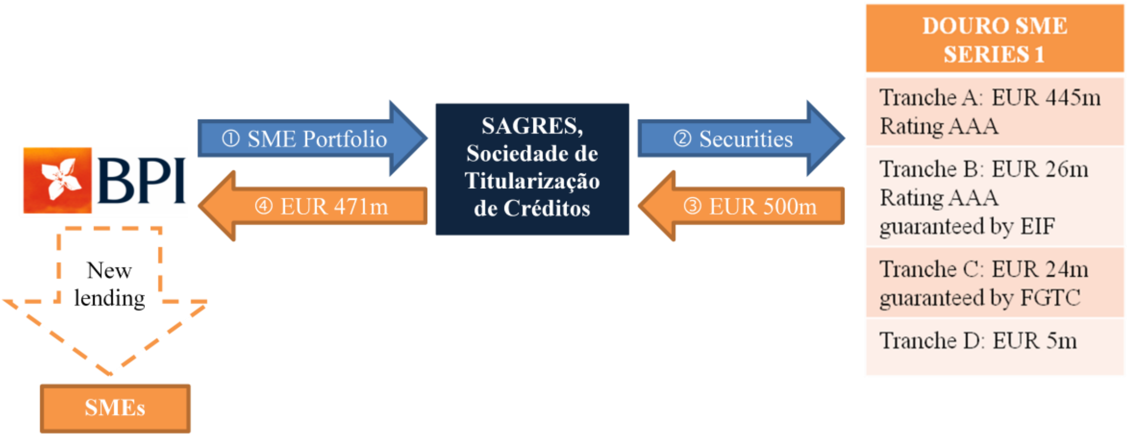
[32] The *FGTC* was created by the Decree Law No. 188/2002 of 21 August to provide public support to SME loan securitisation in Portugal (PME Investimentos, 2013).

The underlying loans to SMEs were mainly directed to the real estate and construction sectors (20,46% of the initial balance), followed by wholesale trade (11,02%), and retail trade (10,99%). In terms of number of loans, entrepreneurs were the main beneficiaries with 1 030 loans (18,85% of the total number of loans).

Entities involved in Douro SME Series 1

The SME loan portfolio was sold to the Citigroup securitisation company *SAGRES, Sociedade de Titularização de Créditos, S.A.*, which issued 4 tranches of securities to finance the purchase (Figure 19).

Figure 19: Structure of the transaction *Douro SME Series 1*



The European Investment Bank and Kreditanstalt für Wiederaufbau (KfW, the German development bank) participated as investors in the senior tranche A becoming the holders of 30% of the total issue. The European Investment Fund was the guarantor of the tranche B (one of the middle tranches, also denominated mezzanine tranche) corresponding to 5,2% of the total issue. The *Fundo de Garantia de Titularização de Créditos (FGTC)* also participated as guarantor of the tranche C (4,8% of the total issue). Banco BPI retained the tranche C, on top of the tranche D (the so-called first loss or equity piece), which together corresponded to 5,8% of the total issue (Table 8).

The EIB Group and the FGTC participated in the transaction under the condition that Banco BPI would grant new loans to SMEs within 2 years from the closing date (i.e. until April 2007). At end-September 2006, Banco BPI had already granted 3 161 new loans to SMEs, corresponding to a total amount of EUR 500 million. Furthermore, in compensation for its investment, KfW requested Banco BPI to increase mortgage loans (Banco BPI, 2005a and PME Investimentos, 2013).

Table 8: *Douro SME Series 1* tranches at issuance

Tranches	Rating	% total	Guarantees	Investors
Tranche A EUR 445m	AAA	89%	--	European Investment Bank: EUR 75m KfW: EUR 75m Institutional Investors: EUR 295m
Tranche B EUR 26m	AAA	5,20%	EIF	Institutional Investors
Tranche C EUR 24m	Unrated	4,80%	FGTC	Retained by Banco BPI
Tranche D EUR 5m	Unrated	1%	--	Retained by Banco BPI
Total: EUR 500m				

Source: Banco BPI (2005b)

Prior to *Douro SME Series 1*, Banco BPI had already been in contact with the German development bank KfW, the European Investment Bank, and the European Investment Fund. In 1999, Banco BPI participated in a EUR 400 million bond issuance of KfW, and in 2002, KfW granted a EUR 100 million loan to Banco BPI (Banco BPI 1999 and 2002 Annual Reports). Moreover, since 1983 and up until end-2004, Banco BPI received from the European Investment Bank a total of EUR 655,4 million in the form of global loans to support SMEs. Such amount represented approximately 21% of all global loans granted by the European Investment Bank to Portuguese financial institutions from 1976 to 2004 (EIB, 2014). The participation of KfW and the European Investment Bank in the SME loan securitisation *Douro SME Series 1* was an alternative to direct loans to Banco BPI with the objective of supporting its lending activity. In addition, the BPI Group has been a minority shareholder of the European Investment Fund since at least 1996, either as *Banco Português de Investimento, Banco de Fomento e Exterior* (acquired by the BPI Group in 1998), or *Banco BPI*. Banco BPI has maintained up until now its participation at 0,3%, whereas Caixa Geral de Depósitos and Banco Comercial Português stepped out of the European Investment Fund's capital in 2000, and Banco Espírito Santo in 2005 (EIF Annual Reports from 1997 to 2013).

The *Douro SME Series 1* tranches A and B Notes were rated AAA by the rating agencies Moody's, Standard & Poors and Fitch, whereas the tranches C and D Notes were unrated. The Notes were placed on the international market between 18 and 24 March 2005. The demand for the tranche A Notes exceeded two and a half times their amount. As a result, this tranche obtained the lowest spread in a Portuguese SME loan securitisation transaction until then (Banco BPI, 2005a and Société Générale, 2005).

Société Générale was the arranger of the transaction. It also acted as manager together with La Caixa, and Banco BPI (Table 9).

Table 9: Entities involved in *Douro SME Series 1*

Originator	Banco BPI, S.A.
Issuer	SAGRES – Sociedade de Titularização de Créditos, S.A.
Servicer	Banco BPI, S.A.
Common Representative	The Law Debenture Trust Corporation plc
Managers	Société Générale, La Caixa and Banco BPI, S.A.
Rating Agencies	Fitch, Moody's and Standard & Poor's
Transaction Manager	Citibank, N.A. (London Branch)
Transaction Accounts Bank	Citibank, N.A. (London Branch)
Collection Account Bank	Banco BPI, S.A.
Agent Bank	Citibank, N.A. (London Branch)
Sole Arranger & Bookrunner	Société Générale
Swap (or Hedge) Counterparty	La Caixa
Principal Paying Agent	Citibank, N.A. (London Branch)
Luxembourg Paying Agent / Listing Agent	Société Générale Bank & Trust

Source: Douro SME Series 1 prospectus available at CMVM and Moody's Pre-Sale Report

Credit enhancements

The credit enhancement of the issue was composed of a subordinated loan from Banco BPI, as well as the third party guarantees from the European Investment Fund to the tranche B and from the Portuguese *Fundo de Garantia de Titularização de Créditos (FGTC)* to the tranche C. According to the operation's prospectus, the subordinated loan from Banco BPI was used to fund the issuer's expenses in issuing the notes (including the European Investment Fund's fees), the expense account, and the Cash Reserve Account by 0,25% of the total underlying portfolio amount (EUR 1,25 million).

Hedge agreement

Pursuant to a hedge Agreement signed within the transaction, La Caixa was entitled to receive the fixed rate and EURIBOR index rate charged on the underlying loans to SMES and pay in exchange to the issuer the equivalent to EURIBOR 3 months.

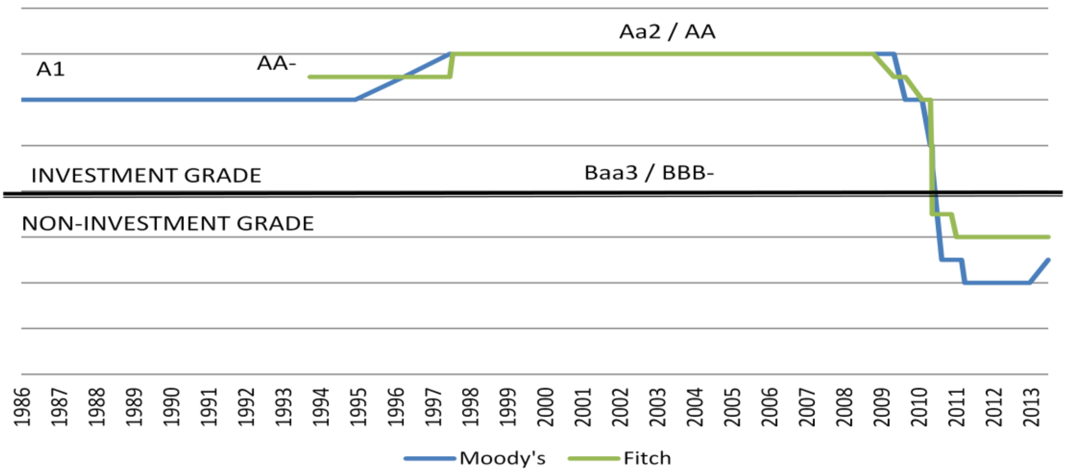
Ratings' performance of Douro SME Series 1 notes[33]

The tranche A notes were downgraded in April 2011 by the rating agencies Moody's and Fitch from Aaa/AAA to Aa2/A+ as a result of the downgrade of the

[33] For more information on ratings definitions, please refer to the Appendix 3 of the present dissertation.

Portuguese Republic's rating (Chart 4). In addition, Moody's decided to cap in February 2012 the ratings of all structured finance operations in Portugal at Baa1, 5 notches above the Portuguese Republic's rating (Moody's, 2012a). Prior to their redemption in 2012, the tranche A notes were rated Baa3 by Moody's and A by Fitch.

Chart 4: Portugal sovereign rating history



Although benefitting from a guarantee from the European Investment Fund, the tranche B notes were also downgraded by Moody's from AAA to Baa1 (below investment grade) in August 2012. Moody's claimed that the European Investment Fund guarantee could not cover all political, institutional, financial and economic risks, as for instance the risk of currency redenomination, or the imposition of capital controls (Moody's, 2012b). Prior to their reimbursement in 2013, the tranche B notes were rated Baa3 by Moody's and AAA by Fitch. Although the notes were investment grade, they were not eligible to be used in liquidity operations with the European Central Bank as they did not have a minimum rating of A awarded by all credit rating agencies.

Remuneration

Fees

The issuer received at each payment date (February, May, August and November) a management fee equivalent to 0,015% per year of the principal outstanding amount of the issue. Banco BPI charged servicing fees composed of an annual fixed amount of EUR 500 000 and a variable amount equivalent to 0,08% per annum on the principal outstanding balance of the underlying SMEs loans portfolio. In addition, the European Investment Fund received fees in relation to its guarantee amounting to 0,51% per year on the principal outstanding balance of the tranche B notes. There is no information in the prospectus or in the investors' reports on any guarantee fee charged by the FGTC.

Interest rates

The interest rates to be paid on the issued notes were floating rates indexed at EURIBOR 3 months added by a spread depending on their seniority (Table 10).

Table 10: Interest rates on the *Douro SME Series 1* notes

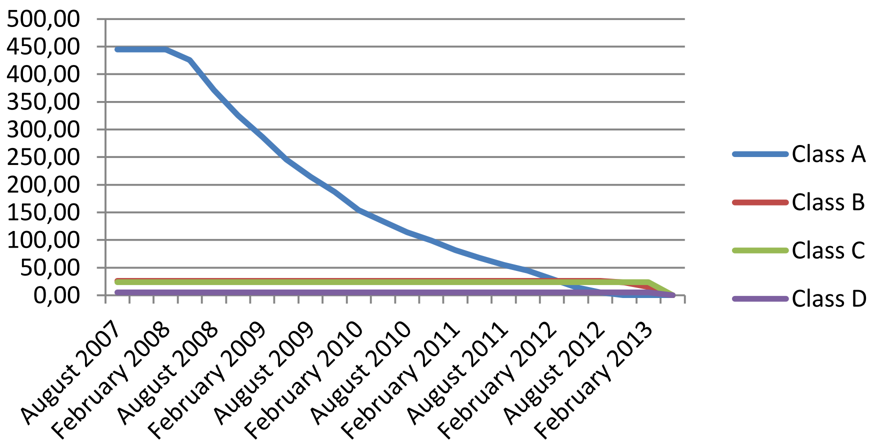
Classes	ISIN	Ratings at issuance Moody's/Fitch/S&P	Reference Rate	Spread (in bps)
A	XS0216212000	Aaa/AAA/AAA	EURIBOR 3M	10
B	XS0216212851	Aaa/AAA/AAA	EURIBOR 3M	8
C	XS0216213230	unrated	EURIBOR 3M	100
D	XS0216213826	unrated	EURIBOR 3M	200

Source: Douro SME Series 1 prospectus, Moody's, Fitch and Standard & Poor's

Amortization

The amortization of the notes started in May 2008, i.e. 3 years from the *Douro SME Series 1* closing date. The tranche A notes were fully reimbursed in November 2012, whereas all other tranches were fully repaid in May 2013 (early redemption) as a result of the exercise of the clean up option by Banco BPI (Chart 5).

Chart 5: Amortization of *Douro SME Series 1* notes



Source: Douro SME Series 1 Investors' reports available at Citi Investor Reporting for Structured Finance website

Liquidity

Prior to their redemption, there were no active transactions involving the *Douro SME Series 1* notes in Bloomberg. Furthermore, none of the series could be used as collateral in the European Central Bank's liquidity operations as they did not meet the minimum rating criteria.

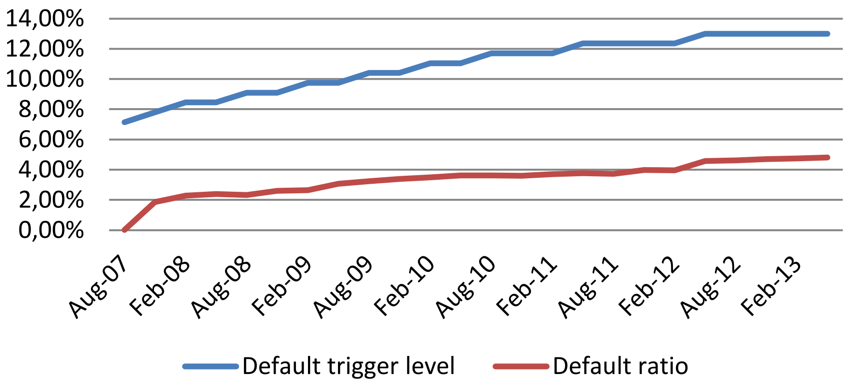
Subscription

Funds subscribed 45% of the tranches A and B notes, followed by the supranational entities: the European Investment Bank and the German development bank KfW, together subscribing 30%. Banks (12%), insurance companies (6%), pension funds (4%), and hedge funds (1%) closed the gap. All investors of the tranche A and B were located in Europe, mainly in France (34%), Germany (17%), Luxembourg (16%), Spain (10%), Ireland (6%), with Portuguese investors purchasing 4% of the tranche A and B notes (Société Générale, 2005).

Trigger levels

The delinquency ratio[34] trigger was set at 2,5%, whereas the default ratio[35] trigger levels was set at different levels on each payment date (Chart 6). The delinquency ratio was calculated by dividing the overdue principal payments by the performing principal outstanding portfolio balance on each payment date after April 2008. The default ratio was equal to the cumulative principal loans to SMEs which defaulted since April 2005 divided by the initial portfolio balance.

Chart 6: Default trigger level and default ratio of the *Douro SME Series 1* underlying portfolio



Source: Douro SME Series 1 prospectus and Investors' reports (own elaboration)

Other triggers included concentration limits on the outstanding underlying SME loans portfolio, such as the maximum percentage of loans to a single borrower (1%), or to a single industry (20%), as well as rating triggers on the originator (minimum long-term rating of at least BBB-/Baa3) and other entities involved in the transaction.

[34] Delinquency refers to overdue loans.

[35] According to the operation's prospectus, defaulted SME loans refer to overdue loans outstanding for more than 150 days or with legal proceedings underway.

4.4. Case Study 2: CHAVES SME CLO No. 1

Chaves SME CLO No. 1 was the first SME loan securitisation operation undertaken by the Portuguese Bank *BPN – Banco Português de Negócios, S.A.*. The operation was finalized in 20 December 2006 (closing date) for a total amount of EUR 616,72 million with maturity in November 2034. The revolving period, during which only interests were paid, ended in May 2009. According to *Chaves SME CLO No. 1* investors' reports available at Citi Investor Reporting for Structured Finance website, on 20 August 2014, the securities issued were still being reimbursed, with a remaining principal amount of EUR 70,2 million (11,7% of the initial balance).

BPN – Banco Português de Negócios, S.A.

BPN – Banco Português de Negócios, S.A. ("BPN") was founded as an investment bank in 1993 following the merger of the financial institutions Soserfin and Norcrédito. BPN was transformed into a commercial bank in 1998, and nationalized in November 2008 after several accounting and reporting irregularities were discovered (Neves and Fernandes, 2011, and Lusa, 2012). At end-2008, BPN had total assets worth EUR 6,7 billion (EUR 7,8 billion at end-2007). In 2012, BPN was re-privatised and acquired by Banco BIC Português, S.A. ("Banco BIC"), which assumed from that moment on the position of servicer in the securitisation operation *Chaves SME CLO No. 1*. The Portuguese bank Banco BIC was set up in 2008 as a subsidiary of Banco BIC, S.A. headquartered in Angola. Nowadays, Banco BIC provides banking services through a network of more than 200 agencies, 15 corporate customers' centres serving more than 7 500 companies, and 2 private banking centres located in Portugal, as well as a representative office in South Africa (Banco BIC 2012 and 2013 Annual Reports).

Underlying portfolio characteristics

According to *Chaves SME CLO No.1* prospectus, the underlying portfolio was originally composed of 12 069 loans to SMEs granted to 11 406 borrowers and originated from 1998 to 2006. The weighted average remaining term of the loans at the cut-off date (October 2006) was 4,81 years. 88,55% of the amount of securitised loans to SMEs were indexed to EURIBOR, and interest payment frequencies ranged from 1 month to 12 months, with 99,73% of the interests being paid every 6 months or less.

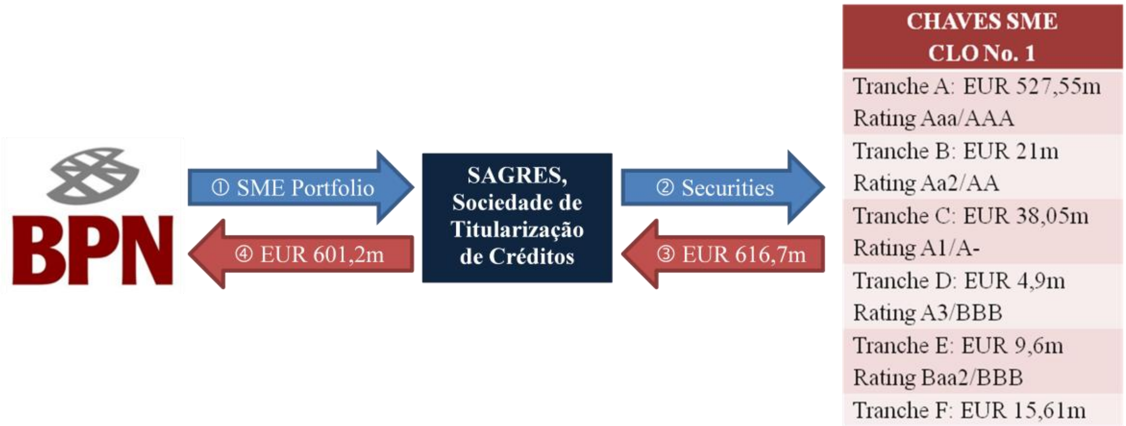
In terms of geographic location, 2 940 loans to SMEs (17,58% of the initial balance, or EUR 105,7 million) comprised in the underlying portfolio were originated in the Leiria's region, followed by Porto and surroundings (2 226 loans worth EUR 114,9 million), Lisbon and surroundings (1 364 loans worth EUR 184,67 million), Beira Interior (1 242 loans worth EUR 27,63 million), and Aveiro (929 loans worth EUR 26,74 million).

The underlying loans to SMEs were mainly directed to the real estate and construction sectors (31,53% of the initial portfolio balance), followed by retail trade, excluding food and drug (12,18%). In terms of number of loans, entrepreneurs were the main beneficiaries with 8 183 loans (67,8% of the total number of loans).

Entities involved in Chaves SME CLO No. 1

The SME loan portfolio was sold to the Citigroup securitisation company *SAGRES, Sociedade de Titularização de Créditos, S.A.*, which issued 6 tranches of securities. The proceeds of the issuance of securities were used by SAGRES, the issuer, to purchase a SME loan portfolio totalling EUR 601,21 million (Figure 20).

Figure 20: Structure of the transaction *Chaves SME CLO No. 1*



Of all the issued tranches, the tranche F notes were the only ones that were not listed or rated. According to *Chaves SME CLO No. 1* prospectus and Moody's Pre-sale Report, part of the proceeds of the tranche F were used to pay for the expenses of the issuer. The remaining funds were deposited in the Cash Reserve Account to cover shortfalls in expenses, and Tranches A and B interests up to certain limits.

According to BPN 2006 Annual Report, BPN retained at issuance 13,3% of the tranche C notes, and the whole tranches E and F notes, thus retaining a total of circa 5% of the total issue (Table 11). Following BPN's nationalization, the retained tranches were transferred to Parups, S.A. ("Parups") in 2010. Parups was founded on 16 September 2010 by BPN to take over some of its assets during its restructuration. In view of BPN's reprivatisation, Parups was purchased by the Portuguese Republic in February 2012. According to Parups Annual Report, at end-2013, Parups was in possession of securities of the tranche A, C, E and F for a total amount of EUR 28,4 million (29,5 million at end-2012).

Table 11: *Chaves SME CLO No. 1* tranches at issuance

Tranches	Rating	% total	Credit enhancement	Investors
Tranche A EUR 527,55m	Aaa/AAA	85,5%	--	Partly retained by Parups
Tranche B EUR 21m	Aa2/AA	3,4%	--	n.a.
Tranche C EUR 38,05m	A1/A-	6,2%	--	EUR 5,05m retained by BPN and transferred to Parups in 2010
Tranche D EUR 4,9m	A3/BBB	0,8%	--	n.a.
Tranche E EUR 9,6m	Baa2/BBB	1,6%	--	Fully retained by BPN and transferred to Parups in 2010
Tranche F EUR 15,61m	Unrated	2,5%	Cash reserve account and excess spread	Fully retained by BPN and transferred to Parups in 2010
Total: EUR 616,71m				

Source: Chaves SME CLO No. 1 prospectus, BPN 2006 Annual Report, Parups 2012 Annual Report and Sagres 2013 Annual Report

Pursuant to BPN's acquisition by Banco BIC Português, S.A. ("Banco BIC"), Banco BIC became the servicer of *Chaves SME CLO No. 1*. Other entities involved in the transaction included the Royal Bank of Scotland as arranger and bookrunner, manager, and swap counterparty (Table 12).

Table 12: Entities involved in *Chaves SME CLO No. 1*

Originator	BPN – Banco Português de Negócios, S.A.
Issuer	SAGRES – Sociedade de Titularização de Créditos, S.A.
Servicer	BPN – Banco Português de Negócios, S.A. (now Banco BIC Português, S.A.)
Common Representative	The Law Debenture Trust Corporation plc
Managers	The Royal Bank of Scotland and Banco Efisa, S.A.
Rating Agencies	Moody's and Standard & Poor's
Transaction Manager	Citibank, N.A. (London Branch)
Transaction Accounts Bank	Citibank, N.A. (London Branch)
Collection Account Bank	BPN – Banco Português de Negócios, S.A. (now Banco BIC Português S.A.)
Agent Bank	Citibank, N.A. (London Branch)

Sole Arranger & Bookrunner	The Royal Bank of Scotland plc
Swap (or Hedge) Counterparty	The Royal Bank of Scotland plc
Principal Paying Agent	Citibank, N.A. (London Branch)
Luxembourg Paying Agent / Listing Agent	Dexia Banque Internationale à Luxembourg, S.A.

Source: Chaves SME CLO No. 1 prospectus and Notice to the Noteholders of Chaves SME CLO No.1 dated 12 March 2013 available at Luxembourg Stock Exchange website

Credit enhancements

The *Chaves SME CLO No.1* transaction defined as credit enhancements: the Notes subordination, a Cash reserve account from the proceeds of the sale of the Tranche F notes, as well as the excess spread from the tranche F. The excess spread refers to the amount remaining once all payables and expenses are covered, which could have been distributed to the Tranche F note holder. Such amount can be deposited into a reserve account to cover any future shortfalls.

Hedge agreement

Interest rate swaps agreements were signed with the Royal Bank of Scotland (RBS). Under such agreements, RBS hedges mismatches between the interests received from the SMEs by the issuer (EURIBOR 1 to 6 months and EUROLIBOR) and the interests paid by the issuer to the note holders (EURIBOR 3 months).

Ratings' performance of Chaves SME CLO No. 1 notes[36]

The tranche A notes were downgraded in July 2009 from Aaa to A1 by Moody's, together with all the other notes as a result of Moody's revision of its methodology for SME granular[37] portfolios in Europe, as well as the continued deterioration of the underlying SME loans portfolio quality[38]. Such notes were again downgraded in 2011 from A1 to A3 and then Baa1 by Moody's and from AAA to AA- by Standard & Poor's. Such downgrades were the result of the downgrade of the originator and servicer of the transaction, BPN, and the Portuguese Republic. The tranche A notes were recently upgraded from Baa3 to Baa1 by Moody's on the account of the upgrade of the Portuguese Republic's rating (Table 13).

[36] For more information on ratings definitions, please refer to the Appendix 3 of the present dissertation.
[37] Please refer to the term "granularity" the glossary in the Appendix 2 of the present dissertation.
[38] According to Moody's, as of May 2009, the cumulative delinquencies equal or greater than 90 days were equal to 4,92% of the original portfolio balance (2,97% as of March 2009).

Table 13: Ratings' history of *Chaves SME CLO No. 1* notes

Classes	Ratings at issuance Moody's/S&P	Ratings at end-2009	Ratings at end-2011	Ratings at end-2012	Ratings at end-June 2014
A	Aaa/AAA	A1/AAA	Baa1/AA-	Baa3/A-	Baa1/A-
B	Aa2/AA	Baa3/AA	Ba2/AA-	Ba2/A-	Ba2/A-
C	A1/A-	Caa2/A-	Caa2/BBB	Caa2/BBB	Caa2/CCC-
D	A3/BBB	Ca/BBB	Ca/BB	Ca/BB	Ca/CC
E	Baa2/BBB	C/BBB	C/B-	C/B-	C/CC
F	unrated				

Source: Moody's, Standard & Poor's, and Chaves SME CLO No. 1 Investors reports

Remuneration

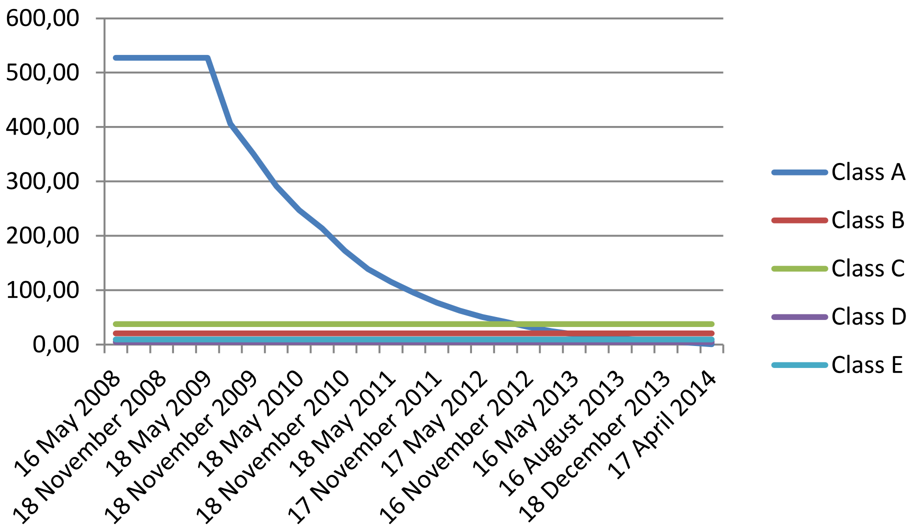
Fees

The servicing fees foreseen in the *Chaves SME CLO No. 1* prospectus were equal to 0,25% per annum calculated on the principal outstanding balance of the SME loans. Such servicing fees were paid to BPN until 2012, and since then to Banco BIC.

Amortization

The amortization of the notes started in August 2008. The payment waterfall was modified in May 2012 when the default ratio exceeded the default trigger level. The tranche A notes were fully reimbursed in August 2014, when the amortization of the tranche B notes started. All other tranches' principal has not been repaid yet.

Chart 7: Amortization of *Chaves SME CLO No.1* notes



Source: Chaves SME CLO No. 1 Investors' report (own elaboration)

Interest rates

The interest rates to be paid on the issued notes were floating rates indexed at EURIBOR 3 months added by a spread depending on their seniority (Table 14).

Table 14: Interest rates on the *Chaves SME CLO No.1* notes

Classes	ISIN	Ratings at issuance Moody's/S&P	Reference Rate	Spread (in bps)
A	XS0276890273	Aaa/AAA	EURIBOR 3M	18
B	XS0276892642	Aa2/AA	EURIBOR 3M	25
C	XS0276892998	A1/A-	EURIBOR 3M	45
D	XS0276893020	A3/BBB	EURIBOR 3M	55
E	XS0276893459	Baa2/BBB	EURIBOR 3M	60
F	n.d.	unrated	n.a.	

Source: Chaves SME CLO No.1 prospectus, Moody's, and Standard &Poor's

According to the *Chaves SME CLO No. 1* Investors' report dated 20 August 2014, accumulated unpaid interests on the tranches D and E, property of the Portuguese Republic via Parups, were totalling EUR 131 523,84 and EUR 635 740,80, respectively.

Liquidity

At end-September 2014, there were no active transactions involving the *Chaves SME CLO No.1* notes in the Luxembourg Stock Exchange, nor were the notes eligible assets to be used in the European Central Bank's liquidity operations.

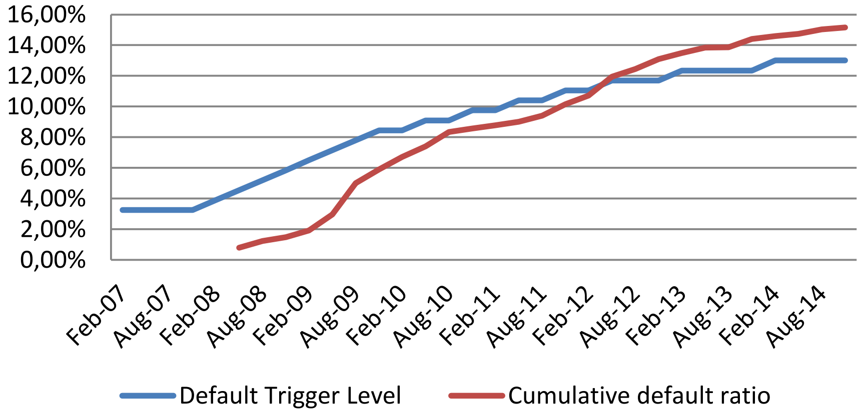
Subscription

There is no publicly available information on the type and country of origin of the investors who purchased the *Chaves SME CLO No. 1* notes.

Trigger events

Several limits were triggered throughout the life of the *Chaves SME CLO No. 1* notes, such as the default[39] ratio trigger in May 2012 (Chart 8).

Chart 8: Default trigger level and cumulative default ratio of the *Chaves SME CLO No. 1* underlying portfolio



Source: Chaves SME CLO No. 1 prospectus and Investors' reports (own elaboration)

[39] According to the operation's prospectus, defaulted SME loans refer to loans with payments due outstanding for more than 180 days from the relevant Instalment Due Date or with legal proceedings instituted by the Originator.

Other trigger events included the maximum percentage of loans to a single borrower which exceeded 1,5% in August 2009, as well as on the same date the maximum percentage of loans to the top 50 borrowers set at 30%. Additionally, in May 2010, the maximum percentage of loans to the top 10 borrowers went beyond 12,5%. In February 2012, the weighted average remaining term of the outstanding underlying SME loans portfolio also surpassed the maximum level of 72 months (6 years).

The transaction also included rating triggers on the originator (minimum long-term rating of at least Baa3 by Moody's) and other entities involved in the transaction, such as the hedge counterparty.

4.5.Comparative Analysis

By comparing a Portuguese SME loan securitisation transaction with the EIB Group support: "*Douro SME Series 1*" and a Portuguese SME loan securitisation transaction without the EIB Group support: "*Chaves SME CLO No. 1*", I intend to answer the following questions:

- ✓ What is the qualitative and quantitative value added of the EIB Group's involvement in SME loan securitisation?
- ✓ How and why might the EIB Group involvement in such transactions be relevant in channelling resources from financial markets to SMEs?

To answer the above study's questions, I defined the following propositions:

Proposition 1: The EIB Group presence in a SME loan securitisation deal has a positive signalling effect to potential investors.

Sub-proposition 1: The EIB Group presence in a SME loan securitisation transaction improves the transparency on the securities' quality.

Proposition 2: The presence of the EIB Group in a SME loan securitisation deal improves the originating bank's funding cost (i.e. reduces its cost of capital), thus possibly permitting this financial advantage to be passed on to SMEs.

Proposition 3: Without the presence of the EIB Group, the originating bank would not increase (or not as much) SME lending following a SME loan securitisation transaction.

The proposed units of analysis for each proposition, as well as the definition of the data to be collected and criteria for results' interpretation, are:

Proposition 1: Percentage of placed tranche(s) in the market out of the total transaction amount versus retained tranche by the originating bank, comparing SME loan securitisation transactions with and without the EIB Group's involvement;

Criteria for results' interpretation: The higher the percentage of placed tranche(s), the bigger the appetite of investors towards such securitisation transaction.

Sub-proposition 1: Defaulted SME loans out of total SME loans' initial balance as opposed to the retained tranches, comparing SME loan securitisation transactions with and without the EIB Group;

Criteria for results' interpretation: The lower is the proportion of defaulted loans in comparison with the percentage of retained tranches, the better the quality of the underlying SME loans' portfolio and the safer the issue.

Proposition 2: Credit spreads on senior and middle (mezzanine) tranches (if placed in the market) versus alternative sources of funding taking into consideration the estimated guarantee fee charged by the European Investment Fund;

Criteria for results' interpretation: If the credit spreads on the senior and the mezzanine tranches added to the guarantee fee of the transaction with the EIB Group support is lower than the credit spreads on alternative funding, then it would show that the presence of the EIB Group improves the originating bank's cost of funding.

Proposition 3: Analysis of the trend of SME lending at least 2 years prior and 2 years following the closing of the SME loan securitisation transaction (bank's portfolio build-up period) using data from the originating bank's annual reports;

Criteria for results' interpretation: If an increase in lending to SMEs occurs and it is higher when the EIB Group is involved in the transaction, it might be highly relevant for the EIB Group to be involved in this type of transactions.

Proposition 1

The EIB Group presence in a SME loan securitisation deal has a positive signalling effect to potential investors.

Although securitisation may bring unwanted effects, such as adverse selection and moral hazard due to asymmetric information, Ambrose et al. (2005) and Albertazzi et al (2011) empirically show that reputation concerns reduce significantly adverse selection and moral hazard. In addition, Albertazzi et al. (2011), using data from Italian banks, provide evidence that originators may signal the securitization quality by retaining a part of the equity tranche of the securities issued (i.e. first loss piece).

In both the *Douro SME Series 1* and *Chaves SME CLO No. 1* transactions, the originators retained the whole first loss piece, as well as other tranches. In total, Banco BPI retained 4,80%, whereas BPN retained 4,91% of the total issue. It should be noted that in the case of *Chaves SME CLO No. 1*, the first loss piece (EUR 15,61 million) represented a credit enhancement to the transaction to fund the cash reserve account.

Based on the percentage of retained tranches, both transactions can be seen as equivalent with a slightly higher percentage of the issue placed in the case of *Douro SME Series 1* (95,2% versus 95,1% for *Chaves SME CLO No.1*). In that sense, the EIB Group presence does not seem to have had much impact on how much of the issue was placed in the *Douro SME Series 1*, when comparing it to *Chaves SME CLO No.1* (without the EIB Group). The demand for the *Douro SME Series 1* tranche A notes exceeded two and a half times its amount, however this kind of information is not available for the *Chaves SME CLO No.1* transaction.

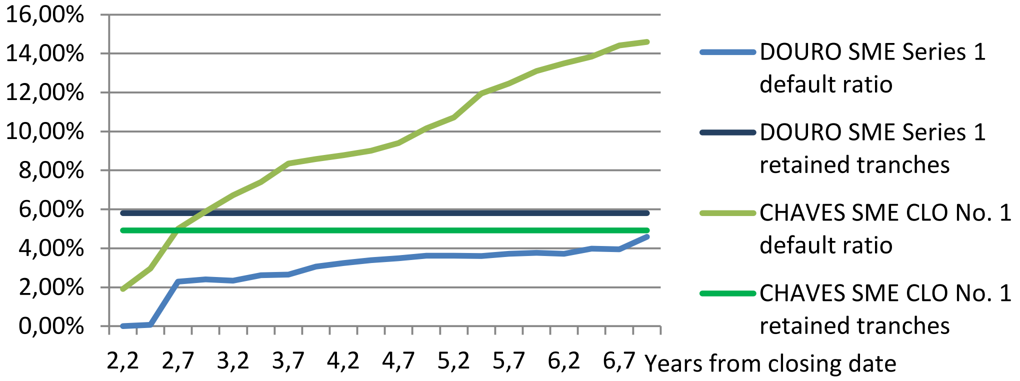
Sub-proposition 1

The EIB Group presence in a SME loan securitisation transaction improves the transparency on the securities' quality.

In the case of the *Douro SME Series 1* transaction, the ratio of defaulted SME loans out of total underlying SME loans' initial balance never exceeded the percentage of the retained tranches by Banco BPI (the originator) until its full repayment in May 2013. Concerning *Chaves SME CLO No. 1*, the defaulted loans ratio surpassed the percentage of retained tranches approximately 3 years after the closing date in May 2009 (1 year since the originator BPN had been nationalized) (Chart 9).

Based on the two studied SME loan securitisation transactions, it seems that the EIB Group did improve the transparency on the securities' quality as it selected the *Douro SME Series 1* transaction, which had the highest quality underlying portfolio.

Chart 9: Default ratios versus retained tranches of *Douro SME Series 1* and *Chaves SME CLO No.1*



Source: Douro SME Series 1 and Chaves SME CLO No. 1 Investors reports

Proposition 2

The presence of the EIB Group in a SME loan securitisation deal improves the originating bank's funding cost (i.e. reduces its cost of capital), thus permitting this financial advantage to be passed on to SMEs.

Cost of funding alternatives relative to SME loan securitisation

DOURO SME SERIES 1

At end-2005, Banco BPI (rated A2 by Moody's at the time) was mainly financing its lending activity on a consolidated basis with customer deposits (46,5%), the issuance of debt securities and subordinated debt (19%), resources from other credit institutions (8,37%), the securitisation of loans (6,63%), and equity (4,93%).

Over 2005, the Banco BPI's average interest rate on customer deposits amounted to 1,50%, whereas the average interest rate over debt securities, subordinated debt, resources from central banks and other credit institutions was equal to 3,5%. In 2005, the securitisation of loans (including mortgage loans and loans to SMEs) carried an overall interest rate of 2,3% (Banco BPI 2005 Annual Report).

Based on Eurostat data, during 2005, the average EURIBOR 3 months was equivalent to 2,18%, which allows the translation the average interest rates into floating rates over EURIBOR 3 months indicated in the following Table 15.

Based on the above, the cost of the *Douro SME Series 1* tranche B notes guaranteed by the European Investment Fund was, in 2005, 73 basis points lower than the cost of debt securities issued by Banco BPI, subordinated debt, resources from central banks and other credit institutions. Nevertheless, it was much higher (+111 basis points) than customer deposits, which was Banco BPI's cheapest form of financing in 2005. Overall, the cost of the tranche B notes was 13 basis points higher than the weighted average funding cost of Banco BPI in 2005 (excluding equity).

Table 15: Average interest rates on Banco BPI's funding sources in 2005

Funding sources	Reference Rate	Spread (bps)
Customers deposits	EURIBOR 3M	-57*
Debt securities, subordinated debt, resources from central banks and other credit institutions	EURIBOR 3M	132
Overall securitisation (mortgage and SME loans)	EURIBOR 3M	12
***Douro SME Series 1* tranche A notes**	EURIBOR 3M	10
***Douro SME Series 1* tranche B notes**	EURIBOR 3M	59**
Weighted average funding cost	EURIBOR 3M	46

** includes the lost interest income on the 0,03% in deposits transferred to the Portuguese Deposit Guarantee Fund and on the 2% deposit reserves required prior to 2012 by the Portuguese Central Bank using Banco BPI's weighted average interest rate on loans to customers of 3,82% (Banco BPI 2005 Annual Report).*

*** includes the European Investment Bank guarantee fee of 51 basis points calculated using the amount charged as guarantee fees on the outstanding balance of the tranche B indicated in the Douro SME Series 1 Investors' reports.*

EIB retrocession

In 2005, the *Douro SME Series 1* tranche A notes were 36 basis points cheaper than the weighted average funding cost of Banco BPI, which shows the financial advantage of securitisation as alternative funding.

During 2005 and 2006, the weighted average fixed rate coupon of the bonds issued in EUR by the European Investment Bank amounted to 1,83% (European Investment Bank data). This translates into a spread over EURIBOR 3 months in that period of approximately -78 basis points. Considering a European Investment Bank's all-in-cost equivalent to EURIBOR 3 months (as I do not have data on how much the European Investment Bank charge to cover its operating expenses[40]), then Banco BPI would have been entitled to receive back from the European Investment Bank the equivalent of 10 basis points (if not more) per annum calculated on the European Investment Bank's participation of EUR 75 million (approximately EUR 75 000 per year). Taking into consideration a all-in-cost of EURIBOR 3 months with a spread between -78 basis points and 10 basis points, the EIB retrocession could have further lowered the cost of all the *Douro SME Series 1* tranche A notes by a maximum of 4,8 basis points.

[40] There is no credit risk as this is a triple-A rated security.

CHAVES SME CLO No.1

At end-2006, BPN (rated Baa2 by Moody's at the time) was financing its lending activity on a consolidated basis with customer deposits (59,11%), resources from other credit institutions (7,82%), the securitisation of loans to SMEs (8,10%), the issuance of debt securities and subordinated debt (5,74%), and equity (5,79%).

Based on BPN 2006 annual report, during 2006, the average interest rate on its customer deposits amounted to 2,84%[41], whereas the weighted average interest rate over debt securities, subordinated debt, resources from central banks and other credit institutions was equal to 4,08%[42]. Based on Eurostat data, over 2006, the average EURIBOR 3 months was equivalent to 3,08%, which allows the translation the above-mentioned average interest rates into the floating rates indicated in the Table 16.

Table 16: Average interest rates on BPN's funding sources in 2006

Funding sources	Reference Rate	Spread (bps)
Customers deposits	EURIBOR 3M	-9*
Debt securities, subordinated debt, resources from central banks and other credit institutions	EURIBOR 3M	100
***Chaves SME CLO No.1* tranche A notes**	EURIBOR 3M	18
Weighted average funding cost	EURIBOR 3M	11

** includes the lost interest income on the 0,03% in deposits transferred to the Portuguese Deposit Guarantee Fund and on the 2% deposit reserves required prior to 2012 by the Portuguese Central Bank using BPN's interests charged on loans to customers of 5,71% (BPN 2006 Annual Report).*

In light of the above, the cost of the *Chaves SME CLO No.1* tranche A notes was, in 2006, 82 basis points lower than the cost of debt securities issued by BPN, subordinated debt, resources from central banks and other credit institutions, thus representing a financial gain. The cost of the *Chaves SME CLO No.1* tranche A notes was however higher (+27 basis points) than customer deposits, which was BPN's cheapest form of financing over 2006, but overall, the cost of the notes was only 7 basis points higher than BPN's weighted average funding cost in 2006 (excluding equity).

In addition, securitisation was a way for BPN to reduce its regulatory capital requirements by EUR 35,1 million. Under Basel II regulation, if BPN would not have securitised the loans to SMEs, it would have had to set aside EUR 36,1 million in

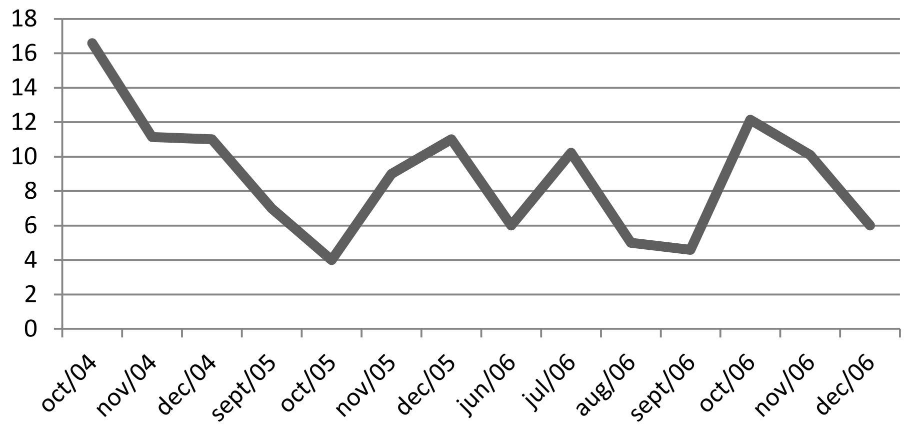
[41] Calculated dividing interest expenses on customer deposits by customer deposits at end-2006
[42] Calculated dividing interest expenses on debt securities, subordinated debt, resources from central banks, and other institutions by debt securities, subordinated debt, resources from central banks, and other institutions at end-2006

capital, whereas by transferring such loans and retaining part of the tranche C notes and the tranches E and F notes, BPN only had to set aside EUR 0,97 million[43].

Cost of the *Douro SME Series 1* and *Chaves SME CLO No.1* tranches A relative to Spanish SME loan securitisation transactions

The remuneration on the tranche A of the transaction *Douro SME Series 1* appears in line with Spanish similar type of operations, whereas the spread on the tranche A of the transaction *Chaves SME CLO No. 1* is much above Spanish similar types of operations closed in the same period (Chart 9). Nevertheless, most of the Spanish SME loan securitisation operations had at least one tranche guaranteed by the Spanish State (29 operations out of 38), which may explain why spreads are lower (De la Mata, 2005, and data from CNMV).

Chart 10: Spread over EURIBOR on Spanish triple-A rated unguaranteed SME loan-backed securities from October 2004 to December 2006 (in basis points)



Source: Prospectus of Spanish SME loan securitisation transactions available at CNMV's website[44]

Two Spanish SME loan securitisation transactions without public support were closed in November 2006: "PYMES Banesto 2" and "Santander Empresas 2, FTA". The spreads over EURIBOR on their triple-A tranches were 10 and 13 basis points, respectively, much lower than the spread over EURIBOR on the tranche A of *Chaves SME CLO No. 1* (18 basis points). It is likely that Banesto and Banco Santander were able to obtain lower spreads than BPN as these were not their first SME loan securitisation transactions. Banesto undertook its first SME loan securitisation

[43] According to Basel II regulation, a risk weight of 50% was applied on the tranche C notes rated A1/A- and a risk weight of 100% was applied on the tranche E notes rated Baa2/BBB. The tranche F was unrated, so no risk weight applies.
[44] Obtained under the section: "Emisiones, admisiones y OPAS" by running searches with the keywords "PYME", "FTGENCAT", and "Empresas" in the period from October 2004 to December 2006.

transaction in June 2002, benefitting at the time from a Spanish State guarantee. Also Banco Santander had structured three SME loan securitisation deals since October 2003, two of which benefitted from a guarantee of the Spanish State.

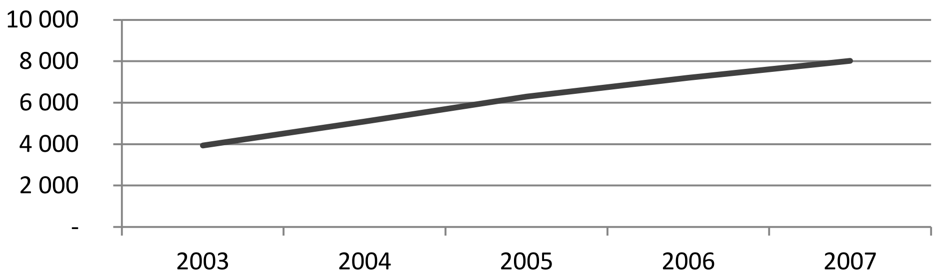
In light of the above, it can be concluded that the presence of the EIB Group in the *Douro SME Series 1* transaction was important for Banco BPI to obtain a spread on its tranche A in line with spreads charged on Spanish triple-A unguaranteed SME loan-backed securities issued in the same period. Nevertheless, I cannot exclude the potential benefits of also having the German development bank and the Portuguese Republic involved in the transaction. Overall, the presence of the EIB Group, KfW, and the Portuguese Republic helped to overcome the fact that *Douro SME Series 1* transaction was the first SME loan securitisation undertaken by Banco BPI. The spread on *Chaves SME CLO No.1* triple-A securities was higher than the spreads charged on Spanish triple-A unguaranteed SME loan-backed securities probably due to the fact that this was its first SME loan securitisation operation in the market and that the transaction did not benefit from any kind of public support.

Proposition 3

Without the presence of the EIB Group, the originating bank would not increase (or not as much) SME lending following a SME loan securitisation transaction.

According to Banco BPI annual reports, loans to SMEs were multiplied by 2 over the period 2003-2007 from EUR 3,9 billion at end-2003 to EUR 8 billion at end-2007 (Chart 10), whereas its assets were only multiplied by 1,5 from EUR 26,2 billion to EUR 40,5 billion over the same period. The biggest increase in lending to SMEs occurred in the years 2004 and 2005 (+29,5% and +23,5%, respectively, than in the preceding year), and it was equal to approximately EUR 1,2 billion per year, more than twice the value of the securitisation operation *Douro SME Series 1* undertaken in 2005.

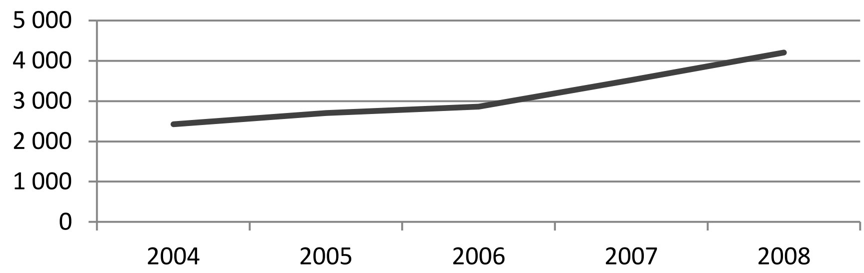
Chart 11: Banco BPI's lending to SMEs between 2003 and 2007 (in million EUR)



Source: Banco BPI annual reports

In the period 2004-2008, BPN lending towards SMEs also increased but by 1,7 times[45], although at a faster pace following the *Chaves SME CLO No.1* securitisation operation undertaken in 2006 (+23,2% between 2006 and 2007 against +5,9% between 2005 and 2006) (Chart 11).

Chart 12: BPN's lending to SMEs between 2004 and 2008 (in million EUR)



Source: BPN annual reports

Overall, lending to SMEs of both Banco BPI and BPN followed the trend of lending to corporates registered by the Portuguese financial sector over the period 2003-2008. Between 2003 and 2008, the amount lent to corporates by the Portuguese financial sector was multiplied by 1,7 (Banco de Portugal datawarehouse[46]). Nevertheless, the increase in lending to SMEs was slightly higher in the case of Banco BPI, which multiplied its lending capacity towards SMEs by 2 in the period 2003-2007, and especially between 2003 and 2005, when Banco BPI was structuring its first SME loan securitisation operation.

4.6.Limitations to the study

One of the limitations of the present study is the fact that it is confined to two cases. Moreover, the selected cases took place prior to the 2008 financial crisis and the European sovereign debt crisis in a much easier market environment. At the time, Portuguese banks did not have as much trouble in placing their SME-loan backed securities with foreign investors. In the aftermath of the 2008 financial crisis, the EIB Group increased support towards SMEs was requested by the European Council as European banks, and among them Portuguese banks, were having problems in financing

[45] Proxy of 77,5% of BPN's lending to corporates as there was no detail in BPN's annual report on the proportion of loans to SMEs. The percentage was defined using the OECD 2013 Scorecard (OECD, 2013) which determined that loans to SMEs represented, on average, 77,5% of the total outstanding business loans in the period 2007-2011. Moreover, over the period from December 2009 to May 2014, loans to SMEs represented on average 75,9% of the overall lending to Portuguese corporates (Banco de Portugal, 2014).

[46] "*Crédito ao sector não monetário excepto administração pública*" from 2003 to 2008

their lending activity. Such constraints were bringing increased financing difficulties to SMEs, which rely heavily on bank financing. In the period 2008-2013, almost all Portuguese SME loan securitisation operations were retained by the financial sector as there was no appetite for Portuguese securities, and the best rated securities were used from 2011 onwards in liquidity operations with the European Central Bank, as the access to the interbank money market was restricted. The only exception was the private SME loan securitisation transaction: *Atlantes SME No.1*. Such SME loan securitisation transaction was the first operation of this type structured by BANIF in 2011 (with maturity in 2042), and it was also the only one benefitting from the EIB Group's support in the period 2008-2013. Thanks to a guarantee by the European Investment Fund, BANIF managed to privately place with an institutional investor 7,9% of the total issue (EUR 90 million). The rest of the issue was retained by BANIF, and the tranches A and B securities were used in short-term renewable repurchase agreements with the Portuguese banks CGD and BES. As in the *Chaves SME CLO No.1* transaction, the construction and real estate sectors were the main beneficiaries with 31,32% in volume of the underlying loans, which were originated between end-1996 and end-2010. The *Atlantes SME No.1* notes were fully reimbursed in February 2013, following a sharp deterioration of the underlying portfolio[47]. After such reimbursement, BANIF structured in 2013 another SME loan securitisation operation: *Atlantes SME No.2* with the main purpose to use the best rated securities in liquidity operations with the European Central Bank.

4.7.Summary of the findings

The EIB Group helped to bring into the *Douro SME Series 1* transaction the German development bank KfW and the Portuguese Republic via the guarantee fund FGTC, thus improving the marketability of the issued securities. Moreover, Banco BPI also benefitted from the European Investment Fund's expertise when structuring the operation. Prior to participating in the *Douro SME Series 1* securitisation transaction, the European Investment Fund had already participated in two other Portuguese SME loan securitisation transactions[48], and one Spanish SME loan securitisation

[47] DBRS Performance Analytics Report dated May 2012
[48] "AR Finance 1 plc" in 2003 and "Caravela Promise 2004 plc" in 2004

transaction[49]. After 2008, the EIB Group's presence was also key to overcome the lack of investors' appetite towards Portuguese securities in the *Atlantes SME No.1* transaction. The EIB Group helped BANIF to place part of the issue with an institutional investor, which would not have been possible without it.

Considering both transactions *Douro SME Series 1* and *Chaves SME CLO No.1*, the EIB Group did support the highest quality transaction, which could have a positive signalling effect to investors in following transactions. Nevertheless, if we consider the transaction *Atlantes SME No. 1* transaction, such finding does not apply, as the transaction was cancelled following a sharp deterioration of the underlying portfolio, highly exposed to the construction and the real estate sectors as in the *Chaves SME CLO No.1* securitisation transaction. In Portugal, defaults on corporate loans increased sharply from an average of 2,03% of defaulted loans over total loans at end-2004 to 9% at end-March 2014. The construction and the real estate sectors are the sectors, in which defaults increased the most from 2,2% and 1,2%, respectively at end-2004, to 25,6% and 18,6%, respectively at end-March 2014 (data from Banco de Portugal). Nonetheless, the preferred creditor status of the EIB Group, its reputation for selecting the safest transactions, as well as the Basel 0% risk-weight carried by the tranche guaranteed by the European Investment Fund, could also have been factors making the *Douro SME Series 1* securities attractive to investors, and especially investors subject to Basel regulation. Furthermore, the presence of the Portuguese Republic in the transaction via the FGTC was an additional guarantee of the safety of the issue, as the FGTC borne the first losses, thus protecting the EIB Group and the other investors.

In the *Douro SME Series 1* transaction, the EIB retrocession and the low guarantee fee charged by the European Investment Fund helped to lower the cost of the SME loan securitisation senior and mezzanine tranches, especially when compared to the cost of issuance of debt securities by Banco BPI, subordinated debt, resources from central banks and other credit institutions. This may be explained by the fact that the triple-A rated EIB Group may obtain funds at advantageous rates in financial markets. As a matter of fact, the biggest financial advantage seems to have lied in the investment by the European Investment Bank, which, thanks to the *EIB retrocession* mechanism, could have lowered the cost of the tranche A notes by a maximum of 4,8 basis points.

[49] "GC FTPYME Pastor 2" in October 2004

Such retrocession may have been transferred to SMEs in the form of lower interest rates, however there is no available data to confirm whether this was the case or not.

The presence of the EIB Group and the Portuguese Republic in the *Douro SME Series 1* transaction seemed to also have helped Banco BPI to obtain a spread on its tranche A in line with spreads charged on Spanish triple-A unguaranteed SME loan securities placed by more experienced financial institutions in the market in the same period. Between October 2004 and December 2006, 76,3% of the Spanish SME loan securitisation transactions benefitted from a guarantee from the Spanish State, which may have pushed the spreads at a lower level over that period (data from CNMV). This was not the case for the *Chaves SME CLO No.1* transaction, whose spread on its triple-A rated securities was higher than the spreads charged on Spanish triple-A unguaranteed SME loan-backed securities issued in the same period, probably due to the lack of public sector support and the fact that BPN had no previous track record in this type of operations.

Following both SME loan securitisation transactions, an increase of loans to SMEs was observed in both Banco BPI and BPN, although slightly higher in the case of Banco BPI in the period 2003-2007[50]. Nevertheless, such increase did not seem to come solely from the EIB Group's presence in the transaction as an increase in loans to corporates also occurred across the whole Portuguese financial sector in the period 2003-2008. However, based on the two SME loan securitisation studied, it seems that the securitisation of loans to SMEs had a positive effect on the increase of both Banco BPI and BPN's lending capacity towards SMEs.

[50] 2 years prior and 2 years after the SME loan securitisation operation *Douro SME Series 1* took place.

Chapter 5: POTENTIAL LINES OF FURTHER STUDY

Among a climate of distrust against securitisation and the banking sector, in 2013, the German bank *Commerzbank* structured the first ever SME Structured covered bond programme in the European Union (EU) and this without the EIB Group support. The SME covered bonds traded at 47 basis points over EURIBOR (Euromoney, 2013). Covered bonds, contrary to traditional SME loan-backed securitisation, provide a dual recourse to the issuer/originator and the pool of underlying assets in case the originator defaults. In covered bonds, the originating bank retains the SME loans on its balance sheet, and has the obligation to pay principal and interests independently from the underlying portfolio's performance, thus providing an explicit guarantee to the securities issued (IFLR, 2014). Moreover, according to the recent EU Bank Recovery and Resolution Directive, covered bonds rank senior in case of a bank's liquidation, thus being seen as the most secure debt instrument compared to other bail-inable instruments (Fitch, 2014).

According to the Portuguese legal framework, covered bonds' instruments issued in Portugal are, at the moment, restricted to mortgage and public sector loans (Golin, 2006), therefore there cannot be any issuance of SME covered bonds for the time being. Nevertheless, in other jurisdiction where such issuance is allowed, such as Turkey, the EIB Group has already participated as investor and guarantor in SME covered bond programmes (Europa, 2011, and EIF, 2012).

Since the end of 2013, there has been a change in investors' appetite towards Portuguese SME loan-backed securities. For instance, in January 2014, BANIF structured the SME loan securitisation operation *Atlantes SME No. 3*, and was able to fully place the tranche A with international investors without the EIB Group support, which had not been the case with any Portuguese bank since 2008. The notes issued borne spreads of 195, 200, and 800 basis points above EURIBOR 3 months, much above the spreads on the Commerzbank SME covered bonds placed in 2013.

In view of the recent events, the main question here remains whether SME covered bonds could effectively connect financial markets and SMEs, and provide SMEs with more and cheaper financing than traditional SME loan securitisation with or without the EIB Group support. Thanks to its expertise in covered bonds (as holder of portfolios of Spanish "*cédulas hipotecárias*" as collateral in certain loans, and as investor and guarantor in the Turkish Sekerbank T.A.S. SME covered bond programme in 2011 and Denizbank SME covered bond programme in 2013), the EIB Group could potentially help developing this new type of financial instrument towards SMEs in Europe, and more particularly in Portugal, as it did with SME loan securitisation in the country. Nevertheless, SME covered bonds and the role the EIB Group could play in their development still need to be further explored as this is a recent matter, with no established and widespread application of legislation within Europe, with ongoing EU banking regulation developments, and under the backdrop of a cautious market environment. As such, the overall impact of SME covered bonds as an answer to SME financing needs still requires detailed studies in the future.

CONCLUSION

Since 2003, the EIB Group has supported SMEs in Portugal through six Portuguese SME loan securitisation transactions. Its presence has been important to help Portuguese banks, such as Banco BPI, to take the first steps in SME loan securitisation, and overcoming their lack of track record in this type of operations. The EIB Group's involvement brought quantitative and qualitative advantages in the 2005 *Douro SME Series 1* transaction, in the form of lower spreads, know-how transfer, and better marketability of the securities issued. The lower spreads obtained could have implied a lower cost of financing for SMEs, although there is no data available to confirm if this was the case or not. Based on the two studied SME loan securitisation transactions *Douro SME Series 1* and *Chaves SME CLO No.1*, there is no definite evidence that the EIB Group's presence was truly effective in increasing the lending capacity of Banco BPI to SMEs, as a slightly lower increase in loans to SMEs was also observed in BPN, which did not benefit from any type of public support, and an increase in loans to corporate, in line with BPN, was also registered by the whole Portuguese financial sector in 2003-2008. Nevertheless, in line with Jobst (2006), the case of *Douro SME Series 1* suggests that the development of a viable securitisation market in a bank-based financial system may be improved through the intervention of a public sector entity. Nevertheless in view of the recent European sovereign debt crisis, it would be advisable that such intervention should be done at a European level, as it could be the case with the EIB Group.

In the aftermath of the 2008 financial crisis, the first SME loan covered bond programme structured in the European Union by *Commerzbank* could be seen as a solution to SMEs' financial difficulties in European peripheral countries. Nevertheless, SME covered bonds and the potential role the EIB Group may play in developing such financial instrument still need to be carefully analysed. Moreover, it remains to be confirmed if such new financial instrument could successfully be implemented in European peripheral countries, or if it would carry with it limitations. Additionally, it would be important to assess whether SME covered bonds could be more successful than SME loan securitisation in channelling funds from financial markets to SMEs and the real economy, or if there are other better and cheaper ways to unlock SMEs' financing.

APPENDIX 1: SME loan securitisation in Portugal since 2003

Year	SME loan securitisation	Type	Originator	Original Portfolio Balance (EURm)	EIB Group Presence
2003	AR Finance 1 plc	True Sale	Banco Invest (Banco Alves Ribeiro)	106,50	Yes
2004	AR Finance 1 plc (TAP issue)	True Sale		50,00	Yes
2004	Promise Caravela 2004 plc	Synthetic	Banco Comercial Português	3 500,00	Yes
2005	Douro SME Series 1	True Sale	Banco BPI	500,00	Yes
2006	Series 06-01 Securitisation Notes*	True Sale	Banco Comercial Português	16,47	No
2006	Series 06-02 Securitisation Notes*	True Sale	Banco Santander Totta	69,89	No
2006	Series 06-04 Securitisation Notes*	True Sale	Banco Comercial Português	7,51	No
2006	Lusitano SME 1 plc	True Sale	Banco Espírito Santo	871,23	Yes
2006	Chaves SME CLO No. 1	True Sale	BPN - Banco Português de Negócios	601,21	No
2007	Aqua SME No. 1	True Sale	Finibanco	250,00	Yes
2008	Caravela SME No. 1 Limited	True Sale	Banco Comercial Português	3 090,25	No
2010	Pelican SME No. 1	True Sale	Caixa Económica Montepio Geral	1 205,29	No
2010	Caravela SME No. 2 Limited	True Sale	Banco Comercial Português	2 741,08	No
2010	Lusitano SME No. 2	True Sale	Banco Espírito Santo	1 981,60	No
2011	Douro SME Series 2	True Sale	Banco BPI	3 606,50	No
2011	BST SME No. 1	True Sale	Banco Santander Totta	2 040,80	No
2011	Atlantes SME No. 1	True Sale	BANIF	1 132,90	Yes
2011	Series 11-01 Securitisation Notes*	True Sale	Banco Comercial Português	2,88	No
2011	Series 11-02 Securitisation Notes*	True Sale	Banco Santander Totta	1,88	No
2013	Atlantes SME CLO No. 2	True Sale	BANIF	834,00	No
2013	Caravela SME No. 3 Limited**	Synthetic	Banco Comercial Português	2 401,58	No
2014	Lusitano Synthetic	Synthetic	Banco Espírito Santo	1 840,00	No
2014	Atlantes SME No. 3	True Sale	BANIF	875,00	No
			TOTAL	**27 726,58**	

**Mixed issuance undertaken by Hefesto STC, S.A. which also includes mortgage or consumer loans within the securitised portfolio / **Mixed securitisation which also includes loans from ENI*

Table based on data on rated transactions from the credit rating agencies Moody's, Fitch, Standard & Poors, and DBRS, prospectus available on the Portuguese Securities Market Commission CMVM website, the Annual Reports of the above mentioned banks, the Annual Reports of the securitisation companies: Sagres STC, S.A., Gamma STC, S.A., Hefesto STC, S.A. and Tagus STC, S.A., the Annual Reports of the Funds' manager companies: Navegator SGFTC, S.A., and Portucale SGFTC, S.A., the Annual Reports and websites of the European Investment Bank and the European Investment Fund, as well as the EuroABS website, the Deutsche Bank Investor Reporting website, and the Citi Investor Reporting For Structured Finance website.

APPENDIX 2: Glossary

Arranger (or Structurer): *"The lead manager of an issue provides the usual capital market functions of arranging all aspects of ABS issuance. Perhaps the key part of the role is determining the appetite investors will have for a new issue and pricing the transaction so that both the issuer's and investor's requirements are satisfied. For arrangers, securitisation is a combination of fee based corporate finance work, and sales and trading carrying with it balance sheet risks. Profits from securitisation are closely linked to the number and volume of transactions executed and the position of the firm in the new issuance league tables, on which both issuers' and investors' perceptions of the expertise of the firm is based. The collective interest amongst these participants is to see volumes increase, the number of originators and investors added to, and the type of assets in ABS broadened as much as possible. To this end, they aggressively market securitisation products"* (European Commission, 2004:79)

Asset-backed security (ABS): *"Generic term for debt securities whose cash-flow characteristics are determined by specific assets or pools of assets and their assigned priority in the cash flow Waterfall discussed below. In common market parlance, ABS excludes the largest single ABS type, residential mortgage-backed securities (RMBS)"* (European Commission, 2004:79 and 2007:40)

"bond that is backed by the cash flows from a pool of specified assets in a special purpose vehicle not the general credit of a corporation. The assets could be residential mortgages (Residential Mortgage-Backed Securities), commercial mortgages (Commercial Mortgage-Backed Securities), automobile loans, credit card receivables, student loans, aircraft leases, royalty payments, or many other asset classes" (Gorton and Metrick, 2012:448)

Asset pools: *"In order to increase cost efficiencies and diversify the credit risk (so that there is no undue concentration on a limited number of obligors), asset securitised are generally grouped into homogeneous portfolios with well-defined eligibility criteria that enable the risks and the expected cash flows to be clearly identified and quantified"* (European Commission, 2004:80 and 2007:40)

Collateralised Loan Obligation (CLO): *"Securitization of commercial bank loans"* (Gorton and Metrick, 2012:448)

Credit enhancement: *"One or more measures taken in a securitisation structure to enhance the security, the credit quality or the rating of the securitised instrument, e.g. by providing a third party guarantee (such as the EIF guarantee). The credit enhancement could be provided in the form of: (i) Structural credit enhancement (tranching of the transaction in senior, mezzanine and junior tranches); (ii) Originator credit enhancement (cash collateral, profit retention* *mechanism, interest subparticipation mechanism); (iii) Third party credit enhancement (EIF or monoline insurers)"* (EIF, 2003:11, and Kraemer-Eis et al., 2010:28 and 2013:41)

Credit Linked Notes: *"A security issued by an SPV (or directly from the balance-sheet of the originator) credit-linked notes to the default risk of an underlying portfolio of assets. Usually used in synthetic securitisations for the mezzanine tranches of a transaction"* (EIF, 2003:11, and Kraemer-Eis et al., 2010:28 and 2013:41)

First Loss Piece (or Equity Piece): *"In any securitisation, the most probable credit losses are concentrated in the First Loss Piece. This is usually held by the originator, which in effect often results in only partial risk transference compared to continuing to hold the securitised assets on its own balance sheet. First Loss Pieces have high return and risk characteristics, hence are sometimes alternatively referred to as 'equity pieces'"* (European Commission, 2004:81 and 2007:41)

"Part of a securitisation transaction which is usually kept by the originator (as an "equity piece") and which covers the risk of first loss in the portfolio" (EIF, 2003:11, and Kraemer-Eis et al., 2010:28 and 2013:41)

Granularity: *"A number of single items in the portfolio pool"* (European Commission, 2004:81 and 2007:41)

Issuer: *"ABS securities are issued by special-purpose vehicles, usually incorporated in tax neutral jurisdictions"* (European Commission, 2004:81 and 2007:41)

"SPV which issues the securities to the investors" (EIF, 2003:11, and Kraemer-Eis et al., 2010:28 and 2013:41)

Mezzanine Tranche(s): *"The tranche(s) directly above the First Loss Piece, which are usually allocated non investment grade ratings. Mezzanine tranches are generally only purchased by ABS market specialists"* (European Commission, 2004:82 and 2007:41)

"Tranche which is subordinated to Senior risk, but ranks senior to the First Loss Piece" (EIF, 2003:11, and Kraemer-Eis et al., 2010:28)

Originator (or Sponsor): *"The party who originally created the claims securitised. Occasionally, this may be a third party who buys the pool with the intention to securitise it thereafter, in which case, they are sometimes referred as 'sponsors'"* (European Commision, 2004:82 and 2007:42)

"The entity assigning receivables in a securitisation transaction (funded transaction) or seeking credit risk protection on the assets (unfunded transaction)" (EIF, 2003:11, and Kraemer-Eis et al., 2010:28 and 2013:41)

Reference portfolio: *"In synthetic transactions, the earmarked portfolio of assets owned by an originator, the performance of all ABS securities and credit protection contracts linked to it"* (European Commission, 2004:83)

Regulatory capital: *"The amount of capital required by banking regulators to support a bank's risk assets using specified risk weightings for different asset types"* (European Commission, 2004:83)

Risk-weighted assets: *"For the purposes of calculating the appropriate regulatory capital tariff, the nominal value of a loan commitment will carry weighted values of between 0 and 100% dependent (under Basel I) on a relatively simple matrix tracking the nature of the obligor, the amount of security granted, whether the commitment is short term or long term, drawn or undrawn and other risk features. Basel II will adopt fundamentally the same approach using a more sophisticated matrix including inputs such as ratings, default frequency, loss given default and exposure at default"* (European Commission, 2004:83 and 2007:43)

Synthetic transactions: *"Securitisation transactions where risk transfer is achieved other than by true sale, normally by means of a credit protection agreement"* (European Commission, 2004:84)

"A transaction where the assets are not sold to an SPV but remain on balance sheet; and where only the credit risk of the assets is transferred to the market through credit default swaps or credit linked notes" (Kraemer-Eis et al., 2010:29 and 2013:41)

Senior Tranche: *"The class of securities with the highest claim against the underlying assets in a securitisation transaction"* (EIF, 2003:11, and Kraemer-Eis et al., 2010:29)

Servicer: *"The party managing the portfolio of assets on the part of the investors, collecting payments due, restructuring and collecting problem/defaulted assets, and periodically reporting on the portfolio to investors. The investor is almost unvariably the originator, but there are standby mechanisms in securitisation transactions that enable the servicer to be substituted should its own weakening financial status potentially threaten investors' interests"* (European Commission, 2004:83 and 2007:43)

"The entity that continues to collect the receivables, enforcement of receivables, etc. Generally, the originator is also the servicer" (EIF, 2003:11, and Kraemer-Eis et al., 2010:29 and 2013:41)

Special Purpose Vehicle (SPV): *"Issuing entity holding the legal rights over the assets transferred by the originator. An SPV has generally a limited purpose and/or life"* (EIF, 2003:11, and Kraemer-Eis et al., 2010:29 and 2013:41).

"A new legal entity (...) created to hold a designated portfolio of assets. The SPV is financed by a combination of debt and equity securities. A key feature is the division of the liabilities into

tranches of different seniorities: payments are made first to the senior tranches, then to the mezzanine tranches, and finally to the junior tranches" (Brennan et al., 2009:895).

"Legal entity that has been set up for a specific, limited purpose by another entity, the sponsoring firm. (...) The SPV can be a subsidiary of the sponsoring firm, or it can be an orphan SPV, one that is not consolidated with the sponsoring firm for tax, accounting, or legal purposes (...) An essential feature of an SPV is that it [should] be bankruptcy remote, that is. the SPV never can become legally bankrupt" (Gorton and Metrick, 2012:450)

Synthetic securitisation: "*A transaction where the assets are not sold to an SPV but remain on balance sheet; and where only the credit risk of the assets is transferred to the market through credit default swaps or credit linked notes*." (EIF, 2003:11)

Tranche: *"A piece, portion or slice within a structured transaction"* (EIF, 2003:11, and Kraemer-Eis et al., 2010:29 and 2013:41)

"(...) refers to a slice of a portfolio ordered by seniority. For example, a senior tranche or AAA tranche is more senior than a junior tranche or BBB tranche" (Gorton and Metrick, 2012:450)

True sale: *"It refers to the separation of the portfolio risk from the risk of the originator, i.e. there is a non-recourse assignment of assets from the originator to the issuer (special purpose vehicle). To be contrasted with synthetic securitisations where only the underlying credit risk is transferred."* (EIF, 2003:11)

Waterfall: *"A key figurative concept in securitisation: the cash flow of the portfolio is first used to fill/refill the requirements of the top tranche; the surplus cash flows then goes to fill/refill the requirements of the second tranche, and so on, until the cash flow is exhausted. The bottom 'equity' piece (First loss piece) receives the residual cash flow after all other prior claims have been satisfied. Dependent on the performance of the asset pool, this residual cash flow will represent a high rate of return when the pool performs well: conversely, if the portfolio performs less well than expected, the bottom piece may in consequence receive zero returns and be irrecoverable"* (European Commission, 2004:85 and 2007:43)

APPENDIX 3: Long-Term Issue Credit Ratings definitions

Rating Agency		Credit worthiness
Moody's	**Fitch, S&P[1] and DBRS**	
Aaa	AAA	Highest quality debt instrument with almost no chance of default (lowest level of credit risk) / Extremely strong capacity for payment of principal and interests unlikely to be adversely affected
Aa	AA	High-quality debt instrument subject to a very low credit risk/default risk / Very strong capacity for payment of principal and interests not significantly vulnerable
A	A	Upper-medium grade subject to low credit risk Strong capacity for payment of principal and interests more vulnerable to adverse business or economic conditions
Baa	BBB	Medium-grade debt instrument subject to moderate credit risk, which may possess certain speculative characteristics Adequate capacity for payment of principal and interests likely to be weakened by adverse or changing business or economic conditions
Ba	BB	Speculative debt instrument subject to substantial credit risk Capacity for payment of principal and interests substantially vulnerable to adverse changes in business and economic conditions
B	B	Speculative debt instrument subject to high credit risk with a limited margin of safety / Capacity for continued payment vulnerable to deterioration of the business and economic conditions
Caa	CCC	Speculative debt instrument of poor standing subject to very high credit risk / Default is a real possibility
Ca	CC	Speculative debt instrument likely in, or very near, default, with some prospect of recovery of principal and interest
C	C	Lowest rated with imminent or inevitable default with little prospect for recovery of principal or interest
	D	In default or in breach of a payment promise
NR		No rating has been requested, or there is insufficient information on which to base a rating
WR		Withdrawn ratings

Source: Moody's, Fitch, Standard & Poor's, and DBRS ratings definitions

Notes: The suffix 'sf' denotes an issue that is a structured finance transaction.
Moody's adds the numbers 1, 2, and 3 to each generic rating classification from Aa through Caa. The number 1 indicates that the obligation ranks in the higher end of its generic rating category; the number 2 indicates a mid-range ranking; and the number 3 indicates a ranking in the lower end of that generic rating category.
Fitch and Standard & Poor's include (+) or (-) to each generic rating classification from AA through B to denote the relative status within each major rating classification. The modifier (+) indicates that the obligation ranks in the higher end of its generic rating category, whereas the modifier (-) indicates a ranking in the lower end of that generic rating category.
DBRS appends (high) or (low) to each generic rating classification from AA to C to indicate the relative status of the debt instrument within each major rating classification.

[1] Standard & Poor's

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Specialized websites:

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Citi Investor Reporting For Structured Finance: *https://sf.citidirect.com/*

Deutsche Bank Investor Reporting: *https://tss.sfs.db.com/investpublic/*

Credit Rating Agencies' websites:

Moody's: *www.moodys.com*

Fitch: *www.fitchratings.com*

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